

Project Management Guidelines

Extramural Research, Development and Demonstration



**U.S. Department of Energy
National Energy Technology Laboratory**

FOREWARD

The United States Congress, through various authorizations and appropriations legislation, has charged the U.S. Department of Energy (DOE) to advance the national, economic, and energy security of the nation by promoting a diverse supply and delivery of reliable, affordable, and environmentally-sound energy, and promoting affordable technologies to conserve and use energy more efficiently. Within this mission, the National Energy Technology Laboratory (NETL), one of 17 DOE national laboratories, has a lead role and responsibility to stimulate the path from concept to development to commercialization for energy technologies that achieve greater efficiencies, environmental performance and cost-competitiveness.

Why is such stimulus necessary? Development of technology innovation, particularly in the energy sector, is typically long-term, capital intensive and high-risk. The energy sector, viewed from a classical economics perspective as a “public good,” has generally been unwilling to assume such risks, without some assistance, in the absence of strong economic incentives or legal mandates.

Congress established mechanisms for financial assistance as a means for the government to off-set risk. This risk-sharing typically comes in the form of government co-funding (via grants and cooperative agreements) but can also include other government resources (e.g., personnel, equipment and facilities). Without such stimulus, development of new technologies would occur at a much slower pace ...if at all.

With the purpose and intent to stimulate the private sector to accomplish national energy objectives in the public interest, NETL manages a portfolio of more than 1,400 applied research and development (R&D) and research, development and demonstration (RD&D) projects. This portfolio has a total award value of nearly \$8 billion and private sector cost-sharing of almost \$4 billion. Collectively, this portfolio is designed to stimulate:

- Research by academia and other science-based organizations to increase understanding of the basic fundamental science of energy production, conversion and conservation;
- Application of innovative concepts and the development of engineering prototypes by technology developers;
- Development of pilot- and commercial-scale demonstrations conducted by technology developers and commercialization partners; and,
- Educate a trained workforce for the energy industry of the future.

These extramural projects are conducted by a broad-range of organizations, including corporations, small businesses, colleges and universities, non-profit organizations, and other DOE national laboratories and government agencies located throughout the nation

and in many foreign countries, and are supplemented by a portfolio of projects conducted by NETL's in-house Office of Research and Development (ORD).

Extramural projects are selected through periodic funding opportunity announcements (i.e., competitive solicitations) or Congressionally-directed actions. The results/outcomes are used to make programmatic decisions on whether to continue down a specific pathway or adjust the roadmap to better meet goals and objectives.

NETL recognizes the importance of ensuring proper oversight and monitoring as an essential ingredient to obtaining high-quality results from its varied and numerous extramural projects. NETL is committed to the development and continual improvement of a consistent and uniform set of guidelines to assist Federal Project Managers. The Project Management Guidance Document embodies NETL's approach to applying the project management principles identified in the June 23, 2006 memorandum from David K. Garman, Under Secretary for Energy, Science and Environment (Appendix A).

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1.0 BACKGROUND AND INTRODUCTION

The National Energy Technology Laboratory (NETL) reports to the U.S. Department of Energy (DOE) Office of Fossil Energy (FE) and is the only DOE national laboratory devoted to fossil energy technology. NETL also provides support to the DOE Office of Energy Efficiency and Renewable Energy (EERE), Office of Electricity Delivery and Energy Reliability (OE) and other federal offices. Central to NETL's responsibilities is management oversight of projects through financial assistance awards, which include extramural Research, Development and Demonstration (RD&D) projects and unique projects with states for EERE. The guidance contained herein is to be used consistently across all NETL's project management activities implemented through grants and cooperative agreements in accordance with financial assistance and other transaction authority pursuant to the governing Code of Federal Regulations. This guidance is equally applicable to projects implemented through Field Work Proposals (FWPs) with other National Laboratories and other mechanisms. Project management activities incorporate the broad context of universally accepted principles identified by the [Project Management Institute](#) (PMI) Project Management Body of Knowledge (PMBok), and [DOE Order 413.3A, Program and Project Management for the Acquisition of Capital Assets](#). Program requirements, missions, internal and external stakeholders, and implementation strategies may differ among project sponsors but a common management framework is maintained.

1.1 PURPOSE

The purpose of this document is to:

- a. Provide overall rationale for NETL project management processes as applicable to financial assistance and other transaction authority—hereafter referred to as financial assistance—and specifically delineating the interface with upfront program planning and budgeting; programmatic and institutional metrics, and periodic systems analysis functions;
- b. Provide guidance to Federal Project Managers (FPMs) and supporting organizations—procurement, finance, communications, legal, property, technology transfer—as to expectations, standard processes and procedures, considerations for selection and execution of projects, risk assessment, and oversight; and,
- c. Define roles and responsibilities of the FPM and other members of the Integrated Project Team (IPT).

The utility of these guidelines is, of course, dependent upon the degree that FPMs and others read and understand the content. This document is intended as a useful guide and comprehensive account of the concepts, processes and procedures to be used by all NETL FPMs. These guidelines are accompanied by practical examples and information maintained by NETL on the Project Management intranet site. As you read the

guidelines, pay attention to your role in the overall program, financial, procurement, and project management activities. Identify those activities in which you take part and what you and those with whom you interface need to do to make those activities successful. Take note of who, functionally as well as the specific individuals, relies upon you for input and conversely, who you rely upon. Think of the roles of others and the information and support they need from you. Consider their time needs, particularly those involved in the later stages of processes whose work tends to stack up against ultimate deadlines. Above all, develop a professional, working relationship with them based on effective communication and mutual trust. If you follow these guidelines, your working life may become more pleasant, free from unnecessary surprises, and generally more successful.

These guidelines are intended to provide standard approaches but allow flexibility to deal with the range of projects managed at NETL. Further, the guidelines are also linked to governing rules, regulations and policy for procurement, financial management, information management and project management within the DOE. The working environment and external influences will inevitably change, and so must these guidelines. You should consider these guidelines a “living document” that captures the continuous improvement of NETL’s project management practices. Updates and additions will be issued at least annually, based on the suggestions and recommendation of users, providers and other stakeholders.

1.2 MISSION

The mission of NETL is to implement RD&D programs to resolve the environmental, supply, and reliability constraints of producing and using fossil resources. NETL is a unique entity within DOE—both the mission and approach to achieving that mission differ from those of other national laboratories. While NETL performs important research within its own laboratories, great emphasis is also placed on partnering with industrial, academia, and other governmental stakeholders to create commercially-viable technological solutions to national energy and environmental problems. **For the purposes of these guidelines, the use of the term “RD&D projects” refers to those projects implemented through financial assistance and other funding agreements with organizations external to NETL, not to in-house research.**

This emphasis on partnering with external organizations requires that NETL maintain a dedicated, trained staff to solicit, award, administer and manage financial assistance agreements on behalf of DOE program offices. As a result, NETL is effectively organized to provide technical management services to FE, EERE, OE and other federal offices.

1.2.1 EXPECTATIONS OF A FEDERAL PROJECT MANAGER AT NETL

Throughout these guidelines, the term Federal Project Manager (FPM) is used to denote a specific job function at NETL which is not specifically an identified position within the personnel system. The term is also used to differentiate from a Federal Project Director (FPD) as defined in [DOE Order 413.3A](#) and [DOE Order 361.1B, Acquisition Career Development Program](#), which has requirements for different education, training, Knowledge, Skills, and Abilities (KSAs) and working relationships. However, this does not imply that there are not similarities between a FPM and FPD. Additional terms such as Contracting Officer's Representative (COR) and Project Officer (PO) are frequently used interchangeably with "Project Manager." These designations more appropriately identify important responsibilities that the FPM or another member of the IPT carries out through acquisition and assistance processes. As such, a significant portion of these guidelines deals with responsibilities relative to the Funding Opportunity Announcement (FOA) and award administration processes, which are tools and services used by project management to obtain the desired programmatic results.

NETL FPMs have a primary responsibility for ensuring that technology development subprograms and associated stakeholders obtain the desired results from the individual projects implemented through partnerships with private sector organizations (industry and academia) and National Laboratories external to NETL. The vast majority of RD&D projects are competitively awarded through periodic FOAs. NETL also has operational responsibility for DOE's unsolicited proposal program, manages projects within the Small Business Innovative Research (SBIR) program, develops and implements Cooperative Research and Development Agreements (CRADA) and initiates non-competitive financial assistance agreements.

At NETL, a FPM carries a range of expectations from various parts of the organization, because the functions performed must be done in coordination with others to effectively execute assigned duties. This includes working with acquisition and assistance personnel, National Environmental Policy Act (NEPA) personnel, Technology Managers, finance personnel, legal counsel, others within management, in-house research personnel, and Headquarters (HQ) Program Managers. The FPM is a primary contact with organizations external to NETL to ensure that work is being done in accordance with assigned award instruments. Expectations include:

- Applying Technical and Managerial Expertise. This requires that a FPM has or acquires technical competency in assigned areas of responsibility as well as competency in applying project management principles. Competency is attained and maintained through many means, which include: formal education, job-specific training, participation in workshops and conferences, reading applicable journals and reports, maintaining knowledge of programmatic issues, reviewing applications received in response to FOAs, participating on technology teams, developing an understanding of the overall business and political environment, and maintaining effective information and technical networks, both internal and

external to NETL. Effective application of this expertise requires significant leadership and dedication to overall organizational goals.

- Effective Prosecution of Required Actions or Job Functions. This requires that a FPM know and understand the policies and procedures set forth by regulation; processes, procedures and systems used by NETL to conduct business; as well as have the ability to work cooperatively with other parts of the organization to ensure that relevant expertise is brought to bear on the required action. A significant portion of these guidelines delineates responsibilities relative to FOA processes, various administrative functions, administration of RD&D award instruments, budget analysis, NEPA documentation, risk identification and assessment, consideration of legal issues, and overall programmatic requirements.
- Ensuring Quality Project Results. This requires that a FPM effectively work with the private sector partners and the IPT to ensure that award instruments are implemented in accordance with terms and conditions, including scope, schedule and cost; provide recommendations on technical progress and modifications; conduct or arrange for required technical reviews; and, ensure that programmatic needs are being met. To be effective, a FPM must maintain technical and managerial competency, as previously noted, and must be diligent in monitoring progress and results of assigned projects within the context of the overall technology development subprograms and the business sector (e.g. energy, mining, environmental control).
- Effective Communication of Results. This requires that a FPM has or acquires the KSAs to communicate project information, both in written form and orally. To be effective, a FPM must use NETL communication tools and follow guidelines for use of the Project Management Information System (ProMIS), TechLines, weekly reports, reporting and tracking of metrics, Congressional Notifications, project reviews, presentations, journal publications, web pages, HQ DOE and Congressional information requests, and informal internal communications. Since FPMs are most knowledgeable of the status and nature of assigned projects, they are expected to keep diverse stakeholder groups current on issues and developments, which require communication at differing levels of knowledge and depth of subject.

1.2.2 FEDERAL PROJECT MANAGEMENT MANDATES

As Government employees, FPMs are entrusted public servants bound by standards of ethical conduct, laws, rules and regulations. Of particular relevance to these guidelines are rules for Financial Assistance. FPMs need a working knowledge of Financial Assistance rules and must maintain cooperative working relationships that rely on the expertise of procurement personnel. Significant aspects of the FPM's job are accomplished in the context of established rules, and individuals must be personally diligent in executing assigned responsibilities for the FOA and award administration

processes. As such, these guidelines frequently refer to NETL's [Procurement Desktop](#) and associated governing Code of Federal Regulations (CFR).

[10 CFR 600](#) implements the Federal Grant and Cooperative Agreement Act and establishes the uniform policies and procedures for the award and administration of DOE financial assistance instruments. [Subpart A](#) (§ 600.1 – § 600.31) sets forth the general policies and procedures applicable to the award and administration of grants, Cooperative Agreements and TIAs. Other subparts set forth the administrative requirements specific to grants and Cooperative Agreements with higher education, hospitals and other non-profits ([§ 600.100 – § 600.173](#)); state and local governments ([§ 600.200 – § 600.252](#)); and for-profit organizations ([§ 600.301 – § 600.381](#)). [Subpart F](#) (§ 600.500 – § 600.505) provides a general statement of policy for eligibility determination.

[10 CFR 603](#) establishes Technology Investment Agreements (TIAs) as a new type of assistance agreement, provides guidance and procedures for their use, and describes how to craft the award instrument. Section 1007 of the Energy Policy Act of 2005 gives the Secretary of Energy authority to enter into transactions (other than the existing statutorily defined instruments - contracts, cooperative agreements, and grants), subject to the same terms and conditions as those given to the Secretary of Defense under 10 U.S.C. §2371. The purposes of this authority are to reduce barriers that prevent some for-profit firms from participating in DOE's research, development, and demonstration (RD&D) programs and broaden the technology base available to meet DOE mission requirements. This authority was established in July 2006, thus supplemental guidance is continuing to emerge and the FPM needs to work with procurement personnel in developing strategies that may use a TIA instrument.

[10 CFR 420](#) and [10 CFR 440](#) provide guidance and procedures for two formula grant programs established by Congress in the mid-1970's: the State Energy Program (SEP) and the Weatherization Assistance Program (WAP). Both programs have federal regulations that define the formula for distribution of funds to States and the program requirements. The SEP provides states with funding for energy efficiency and renewable energy projects to increase the capability of State governments of U.S. Territories to react to energy emergencies, coordinate national energy efficiency goals, and address state-specific energy needs. The WAP provides funds to States, the District of Columbia, and Native American tribes to increase the efficiency of dwellings occupied by low-income persons to reduce their energy consumption and lower their energy bills. States, in turn, fund non-profit organizations and local governments to purchase and install insulation and other energy conservation materials. The unique nature of these programs requires that the FPM understand and adhere to specific timetables, requirements and oversight responsibilities established in the CFR.

1.2.3 DISTINCTION BETWEEN PROGRAMS AND PROJECTS

A FMP needs to understand the specific program or program area under which individual RD&D projects are executed. Requirements, governing regulations, internal and external stakeholders, implementation strategies, and many other factors can vary among the programs. The FPM must understand the programmatic factors to assist in focusing individual RD&D projects on appropriate goals, objectives, information products, and schedule considerations.

Definition of a Program: A *program* is an organized set of ongoing activities directed toward a common purpose or goal undertaken in support of an assigned mission area. Typically, a program is a group of related projects managed in a coordinated way to accomplish broad goals over a relatively long period of time (e.g., a 10 to 15 year planning horizon), to which individual projects contribute.

The FE RD&D Program consists of two major subprograms: Coal and Power Systems and Natural Gas Supply, Oil Supply and Environmental Solutions. These subprograms are further divided into technology development subprograms, as delineated in Section 3.1 of this document. Similarly, NETL has project management responsibility for specific aspects of the EERE and OE programs, which are also termed technology development subprograms for purposes of discussion.

Individual projects are aligned with each of these technology development subprograms and the associated program budget codes in the Standard Accounting and Reporting System (STARS) financial accounting system. FPMs must ensure that the correct program budget codes are used when initiating funding requests. Technology development subprograms represent the primary budgeting and planning level relative to project specific activities; each has associated multiyear plans (including strategies, goals, and objectives), programmatic metrics, designated program and portfolio managers, annual implementation plans, solicitation planning and reporting pathways. In the broad context of the project management principles the mission need, the establishment of requirements, consideration of alternative approaches to meeting program needs, consideration of programmatic risks (and benefits), and high level reporting of results (metrics) are accomplished through technology development subprogram activities.

The technology development subprogram activities described above serve as critical inputs to NETL project management functions. As described in Section 3.2 of this document, NETL FPMs must understand these higher-level programmatic activities and work closely with the Technology Managers and DOE Headquarters personnel who are responsible for their formulation. However, the main purpose of these guidelines is to describe how to implement the projects that support the various technology development subprograms.

Definition of a Project: A *project* is an executable element of a technology development subprogram normally with its own discrete beginning, end and specified outcomes. A project is an executable increment or stepping stone of RD&D activity aimed at

achieving specific objectives or targets in a specified period. A project may be a single award instrument or a group of awards that are being implemented to accomplish specific goals and objectives and thus obtain scientific, technical and engineering knowledge of the concept under study.

Typically, NETL FPMs will be responsible for three distinct classes of projects to which these guidelines apply:

- *Program Announcements* – [§ 600.8](#) states that a program announcement is any issuance used to announce funding opportunities that would result in an award of a discretionary grant, Cooperative Agreement or TIA, whether it is called a program announcement, Funding Opportunity Announcement (FOA), program notice, solicitation, Broad Agency Announcement (BAA), research announcement, notice of program interest or something else. **Hereafter, the term FOA will be used.** A FOA begins with the initiation of a “Requirements Document” at the program or subprogram level and ends with the selection of one or more Applications.
- *RD&D projects* – RD&D projects result from FOAs and are implemented through grants, Cooperative Agreements, TIAs or FWPs. They begin with the selection of Applications and end with the closeout of the award instrument.

These projects do not result in physical property of the U.S. Government. Rather, these partnerships transfer money or property to a Recipient or sub-recipient to accomplish a public purpose of support or stimulation authorized by Federal statute through grants, Cooperative Agreements or TIAs. In DOE, this does not include direct loans, loan guarantees, price guarantees, purchase agreements, CRADAs or any other type of financial incentive instrument. More specifically, RD&D projects are conducted in cooperation with the private sector to meet a mutual set of needs which are in the national interest (e.g., commercialization by the energy sector of advanced technologies that address energy security and environmental stewardship). Private sector partners may indeed realize a capital asset as a result but the deliverable to the Government is scientific, technical and engineering knowledge via technical project reports.

Throughout this document the term “Recipient” is used to designate the organization external to NETL that is responsible and accountable for executing the RD&D project in accordance with the DOE award instrument. Technically, Recipient is the term used for grants, Participant is used for cooperative agreements, Contractor is used for acquisition, and other terms may be used, such as Performer or Partner. For purposes of this guidance document, the term Recipient is primarily used for simplicity. While other terms will inevitably appear in various documents that are linked to these guidelines, keep in mind the concept of the organization external to NETL that is conducting the work.

- Unique Projects with States – These projects are often termed deployment projects, and are not RD&D projects. They are specific to the EERE's State Energy Program and Weatherization Assistance Program. Several special factors, which include the application of legislated formula grants and synergistic working relationships with the states and their energy offices, require application of different procedures.

The general principles of project management embodied in these guidelines are applicable to the three classes of projects. A major difference is that the people responsible for conducting FOAs reside almost entirely within NETL, whereas the persons responsible for performing RD&D projects or unique projects with states are the Recipients (most likely private-sector partners and state offices respectively). The roles and responsibilities of NETL FPMs (see Section 4) in the context of these projects are defined, at least in part, by the terms of the award instrument between NETL and its external partners.

1.2.4 RD&D PROJECTS

In most cases, extramural RD&D projects at NETL are administered through financial assistance awards versus acquisition contracts. FPMs should refer to [DOE Guide to Financial Assistance](#), Section 2.1.1 to understand the rationale. Contracts are used when the Government is acquiring goods and services for their own use, while financial assistance awards are used when there is primarily a perceived public benefit of the work. Since the majority of NETL's RD&D activities focus on developing technology products that have future public benefits, financial assistance agreements are the prevalent award instrument. In addition, program requirements necessitate significant collaboration, participation and intervention by the Government during the execution of technology development and demonstration projects; thus, cooperative agreements are the preferred award instrument.

RD&D projects managed by NETL can be further segmented based on technology maturation into five categories:

- Fundamental Research. Explores and defines technical concepts or fundamental scientific knowledge; laboratory-scale; traditionally but not exclusively the province of academia.
- Applied Research (AR). Laboratory or bench-scale proof of the feasibility of multiple potential applications of a given fundamental scientific discovery.
- Prototype Testing. Prototype technology development and testing, either in the laboratory or the field; predictive modeling or simulation of performance; evaluation of scalability.

- Proof-of-Concept. Pilot-scale development and testing of technology or process; field testing and validation of technology at full-scale but in a manner that is not designed or intended to represent a long-term commercial installation.
- Major Demonstrations. Commercial-scale demonstrations of energy and energy-related environmental technologies; generally a first-of-a-kind representation of a long-term commercial installation.

These technology maturation categories are often termed “stages”, which provide a basis for establishing a rational and structured approach to decision-making and identifying performance criteria that must be met before proceeding to a subsequent stage of development. A variety of nomenclature is used among various R&D organizations, government programs, and industry groups to define technology maturation stages and variety of stage-gate processes are used. The stages delineated above are typical of the types of RD&D activities that NETL manages, but it is realized that variations exist. The primary point is that FPMs need to define and understand: what are the goals and objectives of the RD&D activity, what criteria are to be applied to project success, what are the uncertainties (or risk) associated with the project, what information is to be supplied for decision-making, how must the project (agreement) be structured to accommodate rational decisions, when will information be required, and how will decisions be made. NETL uses a modified stage-gate process in the execution of financial assistance awards that is defined by the FOA process, the specific agreement and financial assistance regulations. Financial assistance awards are structured to have appropriate objectives, decision points, requirements for continuation, information (deliverables) requirements, and budget periods and schedule. Some technology development subprograms, such as several in the EERE program, have programmatic stage-gate procedures that overlay the requirements for the financial assistance agreements administered by NETL FPMs. Again, the FPM must understand the program requirements and ensure that these requirements can be met through the award instrument.

Figure 1.1 Technology Development and Commercialization Path

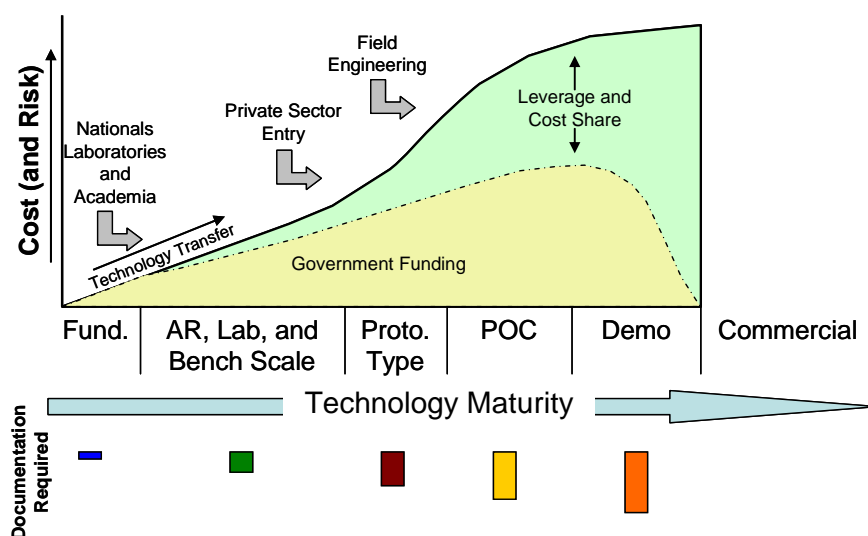


Figure 1.1 is a way to visualize stages in the technology development process and the associated relative costs. As a concept or technology matures, the relative risk to the Federal investment also tends to increase due to complexities, partnering requirements, scheduling and other uncertainties, and the costs (and financial commitments from the private sector) associated with larger-scale activities. A majority of RD&D projects involve Federal and non-Federal (i.e., Recipient) cost-sharing. The requirement for cost-sharing is an effective mitigation strategy to help minimize the Government's financial risk by ensuring that its partners are committed to the goals and objectives of the project. In accordance with the Energy Policy Act (EPAct) and other applicable requirements, cost-sharing varies from 20 percent for early stage research and often exceeds 50 percent for major demonstration projects. It should be noted that the RD&D process is not necessarily linear. Research can move from laboratory-scale testing directly to proof-of-concept testing, or depending on the results obtained from prototype or proof-of-concept testing it may be necessary to return to laboratory-scale or bench-scale studies to resolve unforeseen technical problems with the tested approach. Furthermore, many projects do not proceed beyond laboratory-scale or bench-scale development unless a commercialization path can be identified. Some projects may not advance because they were never structured to proceed for wholly valid programmatic purposes. This should not be viewed as failure—the scientific and technical knowledge acquired is necessary to adjust and refine the portfolio of projects and technologies considered in achieving programmatic success.

Projects at the fundamental and applied research stages of development tend to be of lower cost and are generally less complex in that such projects consist of research on a specific technical subject. This early stage research is often performed by academic institutions, National Laboratories, and small businesses. DOE has numerous initiatives such as the Small Business Innovative Research (SBIR), the Historically Black College

and University/Other Minority Institution (HBCU/OMI) and University Coal Research (UCR) programs that specifically target research to scope out concepts and increase the knowledge base on highly focused topics. In accordance with EPCa, these early-stage projects, with no necessarily clear commercialization path, may have minimal or no non-Federal cost-sharing. The complexity and cost of research tends to increase during prototype and proof-of-concept testing due to the physical size of equipment and integration with other system components. Private sector cost-sharing is expected to increase as technology is moved on the path toward commercial viability. Major demonstrations conducted under the Clean Coal Power Initiative (CCPI) are required by Federal statute to have a minimum 50 percent non-Federal cost-sharing. A similar requirement is derived from EPCa for all technologies approaching commercial viability.

At each stage of technology development, different levels of project documentation and government involvement are required to effectively implement the project. Government policies that implement Financial Assistance rules at [10 CFR 600](#) and [10 CFR 603](#), which further prescribe the level of government involvement and the type and frequency of official project deliverables. In this sense, the project management principles contained in Section 1.2.6 of this guidance document are tailored to accommodate the type of project. Small-scale fundamental and applied research studies require little oversight and minimal reporting by the Recipient, carry minimal risk to overall program objectives, and are not complex. The objective is often to develop knowledge or an understanding of a concept that may or may not ultimately prove to be a viable solution; the project would be deemed successful and valuable even if it were determined that a concept is not viable because the knowledge gained would help in program portfolio management. Projects involving prototype, field proof-of-concept, demonstration scale testing, or those that are structured to progress through various stages typically require greater government involvement and documentation by the Recipient. Comprehensive reporting of results is required prior to significant decision points, such as moving from prototype testing in a simulated environment to field engineering and testing at a pilot facility. These larger-scale projects are typically structured with budget periods that coincide with rational decision points, at which time the FPM, project team members and senior management assess the technical status, results, funding requirements, programmatic needs, and relevant risk factors as go/no-go decisions are made.

It is rare that a single project has as its objective the attainment of program goals. Rather, the strategy to achieve long-term program goals is to establish a suite of projects designed to achieve differing but short-term targets along the path toward accomplishing long-term program goals. The initial set of projects addressing a new program goal established to satisfy a national energy mission need may consist of fundamental research to investigate new and innovative concepts. Due to the high level of uncertainty associated with this research, it is reasonable to expect that only a few will develop sufficiently to merit continuation as applied research. Still fewer will merit further maturation into prototype development or proof-of-concept with private sector/industry participation. Projects cycle into and out of the program as technical and scientific knowledge is acquired and program portfolios are adjusted based on lessons learned. More mature projects (e.g.,

prototype and proof-of-concept) could spawn new fundamental and applied research as “enabling” technologies for further development. Finally, after perhaps many years of intensive and iterative development encompassing many individual projects and programmatic targets along the way, there may be just one capstone project which demonstrates the accomplishment of the program goal(s). Throughout this development process, Federal funding increases as the focus of the program (and its associated projects) shifts to more mature technologies, as does the Recipient’s cost-share requirement; academia and National laboratory involvement subsides as commercial industry involvement increases; and documentation and management oversight of projects increases. Upon commercialization, Government involvement lessens significantly.

RD&D projects typically consist of a single technology maturation level but may encompass multiple levels. These projects can also be categorized by the type of implementing award instrument; that is, grant, Cooperative Agreement or TIA. Grants are typically smaller projects for fundamental or applied research. Examples include SBIR, HBCU/OMI and UCR. Cooperative agreements and TIAs can be used at all technology development maturation levels. Just as the significant differences between capital asset acquisition projects and RD&D projects (i.e., the differences between contracts and financial assistance) require the tailoring of project management principles, so too must the principles be tailored within the realm of financial assistance and other transaction authority due to numerous factors such as maturation level, type of award instrument, complexity, risk, visibility and management prerogative.

1.2.5 UNIQUE PROJECTS WITH STATES

In general, NETL’s policies, practices, roles, and responsibilities apply to EERE’s deployment activities. However, because of several special factors, which include the application of legislated formula grants and synergistic working relationships with the states and their energy offices, there are several types of projects that require different procedures.

State Formula Grants. Formula grant programs are established by Congress and are noncompetitive awards to States based on a predetermined formula. The programs are sometimes referred to as State-administered programs. EERE has two formula grant programs that were established by law in 1975 ([10CFR 420](#) and [10 CFR 440](#)), the State Energy Program (SEP) and the Weatherization Assistance Program (WAP). Both programs have federal regulations which define the formula for the distribution of funds to States and the program requirements. NETL FPMs are responsible for reviewing and approving each assigned state’s SEP and WAP plans. They also monitor the grants through site visits, an online reporting system (WinSAGA), and quarterly or semi annual progress reports. States input their plans and reports into WinSAGA.

The SEP provides States with funding for energy efficiency and renewable energy projects to increase the capability of State governments or U.S. Territories to react to energy emergencies, coordinate national energy efficiency goals, and address state-specific energy needs. The SEP State Plans describe the activities the State will

undertake during the year of the grant, and includes federal mandated activities and optional program activities that meet the goals of the Program. The optional activities are determined by each State according to its individual energy priorities. The State Energy Offices manage all the work deploying emerging renewable energy and energy efficiency technologies funded by SEP.

The WAP provides funds to States, the District of Columbia, and Native American tribes to increase the efficiency of dwellings occupied by low-income persons to reduce their energy consumption and lower their energy bills. States, in turn, fund non-profit organizations and local governments to purchase and install insulation and other energy conservation materials. The WAP is the nation's largest residential energy efficiency program, weatherizing over 90,000 single-family, multi-family, and mobile homes annually. Advanced energy audits are used to determine cost-effective measures for the buildings including blower door testing and heating and cooling system testing for retrofit and replacement, lighting, and refrigerator replacement. The Weatherization Program includes funding for training and technical assistance for the 970 local agencies nationwide.

SEP Special Projects (SEP-SP) SEP Special Projects accelerate the deployment of energy efficiency and renewable technologies by leveraging the expertise of State Energy Offices (SEO) and providing a funding mechanism for collaboration between States and EERE Program Offices on individual projects. DOE releases an annual FOA detailing Special Project opportunities and States compete for funding by submitting proposals. Each EERE program establishes a Merit Review Committee to review the proposals and select those eligible for an award. Most proposals require some level of cost share from recipients.

Omnibus Awards. State Omnibus Awards are designed to provide a streamlined and flexible mechanism for DOE, SEOs, and WAP State agencies to partner in a cooperative fashion on state-level energy efficiency, renewable energy, and weatherization activities within a State. The cooperative agreement enables SEOs and WAP State agencies to fund activities using direct State resources and other partners or customers under sub-agreements to formulate and implement activities that are state-specific in nature. DOE awards, through a restricted eligibility solicitation, cooperative agreements to SEOs and WAP State agencies. An initial master agreement award is established describing the general nature of the cooperative activities. As discretionary funds become available EERE identifies opportunities for States to submit applications for subsequent awards under the master agreement. Each subsequent award includes a scope of work, separate budget, deliverables, and timeline for the completion of activities. Individual awards cannot exceed \$100,000.

1.2.6 PROJECT MANAGEMENT PRINCIPLES

The DOE recognizes that management practices for projects implemented through Financial Assistance agreements differ from those specified for Capital Asset projects that are managed in accordance with [DOE Order 413.3A](#) and [DOE M 413.3-1](#). Capital assets are acquired under *contract* pursuant to the Federal Acquisition Regulations (FAR) at the direction of and exclusively to meet a Government need. Such projects have the intended purpose of acquiring physical property of the U.S. Government, such as laboratory and office facilities. As such, in 2006 revised DOE Order 413.3A was issued that explicitly excludes “Financial Assistance awards (grants and cooperative agreements), which are covered under 10 CFR 600” from the specific requirements of the order.

Importantly, it is expected that all DOE’s project management practices adhere to the principles of sound project management embodied by DOE Order 413.3A. This requirement was reiterated in June 2006 in a memorandum to all DOE Principal Secretarial Offices, which is included in [Appendix A](#) of this document. For reference purposes, Appendix B and Figure B-1 compares the general project management life cycle as depicted by PMI, DOE Order 413.3A, and Financial Assistance. A common framework, with differing requirements, exists in which to manage or monitor progress based on the initial programmatic need and individual project objectives and structure.

The seven principles of project management as tailored to RD&D projects are summarized in Table 1.1.

| Table 1.1 Project Management Principles | |
|--|--|
| 1.0 Mission need must be defined and approved by the appropriate management official | Mission need is based on Federal statute and determined through Program and Budget Planning following Administration initiatives and Congressional direction. Includes strategy development, multi-year plans, operating requirements, procurement planning, and financial commitments. Responsibility of HQ DOE Program Managers and applicable field office Technology Managers. |
| 2.0 A range of alternatives to meet the mission need must be considered, developed and evaluated | Iterative upfront planning is accomplished where technical, programmatic, NEPA, and procurement-related alternatives are considered by HQ DOE Program Managers, Technology Managers and project staff. RD&D projects are initiated by competitive FOAs based on requirements (e.g., Need Areas of Interest) established by HQ DOE Program Managers, and applicable field office Technology Managers. Applications are evaluated and selected for award based on pre-established criteria. |
| 3.0 Project objectives must be defined upfront and used to judge project success | All financial assistance awards contain a Statement of Project Objectives (SOPO) that is negotiated, agreed to and incorporated into the award instrument. The specific length, content and detail of the SOPO depend upon the nature of the activity. |
| 4.0 Project performance risks (technical, financial, and otherwise) must be identified and mitigated in an implementation strategy | Program risks are addressed during upfront planning to ensure all project activities are clearly traced to corporate priorities and strategies. Project risks are addressed initially during and as part of the competitive FOA process and subsequently assessed during the implementation of RD&D projects. NETL performs an independent risk assessment and works with the award recipient to ensure that the project management plan (PMP) includes risk considerations; a separate risk management plan may be warranted, |

| Table 1.1 Project Management Principles | |
|---|--|
| 5.0 Projects must be managed by qualified individuals | FPMs have or acquire technical competency in assigned areas of responsibility as well as competency in project management. Each FA award has an established integrated project team (IPT). IPT membership is based on maturation level, financial assistance instrument, complexity, visibility and management prerogative. The IPT could consist of the FPM and CS for small grants or could be expanded to include Legal Counsel, NEPA Specialist, Project Engineer and other specialties for major demonstrations. The Recipient would mirror this structure. |
| 6.0 Scope, schedule and budget must be established for each project and serve as the basis for project management | The newly awarded financial assistance instrument sets the project technical, schedule and cost expectations. Depending on the estimated budget and complexity of the project, the recipient develops and maintains a PMP that forms the basis for the project. The recipient executes and manages the project in accordance with the plan. |
| 7.0 Projects must be managed and reported against the established scope, schedule and budget | <p>The recipient must formally report progress relative to the scope, budget, schedule and milestones established by the current PMP (baseline). The recipient is responsible and accountable for managing the work elements that constitute the project within the planned schedule and budget. Specific emphasis is placed on evaluation of documented and perceived variances, as well as steps being taken to mitigate problems. A modified stage-gate process is used where projects are managed in phases with discrete budget periods at key decision points. Cost, schedule and technical status are reviewed by DOE to determine if the project should continue into the next budget period, be terminated or revised to better meet objectives. Decision points typically coincide with significant expenditures such as major equipment purchases or major milestones such as completion of feasibility tests, assessment of scale-up studies, or start of construction and operational demonstration. A detailed Continuation Application is required for approval prior to entering each new budget period.</p> <p>Financial assistance instruments are controlled through formal modifications solely under the authority of the Contracting Officer.</p> <p>Official reporting requirements are established consistent with Government policies that implement 10 CFR 600 (10 CFR 603) and prescribe both the level of government involvement and the type and frequency of deliverables. Other informal reporting is identified in the Project Management Plan or a separate communications plan, as appropriate, to ensure the level of reporting and communications among project participants are commensurate with the type and complexity of project. Project information is shared with HQ DOE Program Managers and field Technology Managers.</p> |

1.3 COMMITMENT

NETL is committed to the fundamental objective of project management—to effectively plan, implement and control projects to ensure an appropriate outcome is achieved given the associated budget, schedule and risks. Because RD&D projects are private-public partnerships, the key challenge—and what distinguishes them from capital asset acquisition projects—is that project management is not the sole province of the Government. The private sector Recipients play a vital role. Indeed, for many aspects of project management, the Recipients play the primary role; in these instances, the FPM is responsible for ensuring that the Recipient has the appropriate and fully functioning project management system in place. This necessitates that project management processes and procedures throughout the project life cycle facilitate collaboration and coordination between NETL and its private sector partners.

2.0 DEFINING MISSION NEED

The programmatic mission need for financial assistance is established by Federal statute; for a specific RD&D project the need is to support the overall program by acquiring data which supports programmatic decision-making and portfolio management. The ultimate goal is to support the development of technology or technologies that satisfy long-term program objectives that can be eventually deployed in the standard operation of industrial facilities (and thereby accomplish a public purpose). Thus, defining a project mission need requires program level involvement. The programmatic development generally occurs on an annual basis through the development of the DOE Strategic Plan. This in turn feeds the development of a program specific strategic plan, technology roadmaps, annual budgets, annual business and procurement plans, annual performance measures as outlined in the Government Performance and Results Act (GPRA) and Program Assessment and Rating Tool (PART), etc., toward individual project award and execution. As a result of these processes, multiple projects may be awarded targeting a specific Mission Need. This allows the development of several technologies that could be used by industry.

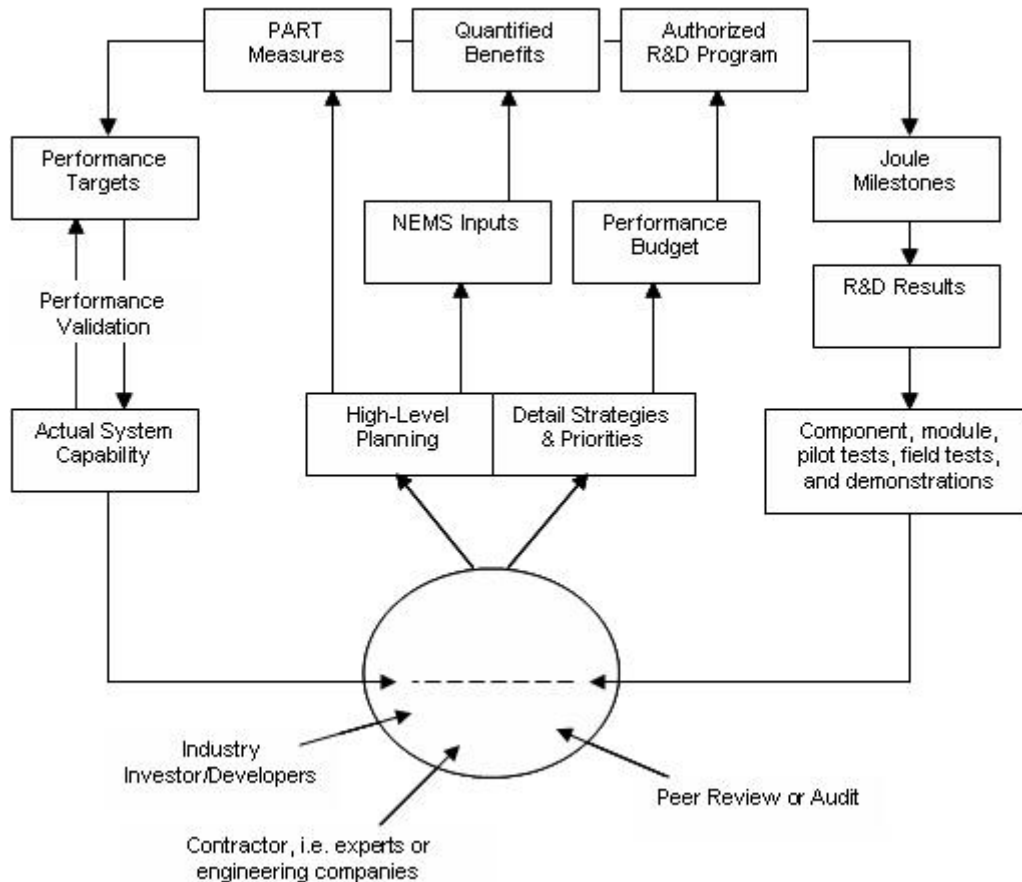
Discussed below are examples of the types of strategic planning and other documentation in the planning process.

- DOE Strategic plan. Provides guidance for preparation of all other more detailed documentation.
- Program-Specific Strategic Plans (typically Multi-year Program Plans). Additionally defines program goals, objectives and originates technology roadmaps with annual targets. It also quantifies national benefits of the program.
- Annual Budgets. Additionally detail annual targets in continuity with prior plans and accomplishments and adjust performance expectations consistent with budget request decisions.

- Annual Operating and Procurement Plans. On an annual basis, these plans are developed to focus the execution activities for FOA actions.
- GPRA Program Plan. Links the program goal and technology objectives with detailed multi-year performance targets; provides the primary linkage between the DOE Strategic Plan, the performance budget, and the PART, and serves as a change control tool.
- GPRA-level Performance Plan and Report. Links the program goal, technology objectives, and annual targets of the budget with key milestones to track and report progress by quarter.
- PART. Links GPRA Program Plan performance parameters with other criteria important to the Office of Management and Budget (OMB); for FE, anchored in GPRA Program Plan.

As a result of the annual planning activities, including business and procurement plans, FOAs are issued, financial assistance applications (i.e., project proposals) from industry and academia are received and evaluated, and those that best meet short- and long-term goals and annual targets outlined in the strategic plans and lower tier documents are selected and awarded. FPMs should work with their supervisors and technical management leads to understand the connection between the project selected and the strategic planning elements. Understanding this connection will provide the need for the project, why the results are important, and the actions that may be required to support the continued development of the project, including the reporting and analysis of results and benefits and using the information to begin the planning processes once more. Additional information on the assignment of projects will be addressed in Section 7.0 on Funding Opportunity Announcements.

Figure 2.1 Planning for Performance



3.0 ANNUAL PLANNING AND BUDGETING

Programmatic planning documents prepared in coordination with HQ DOE organizations (primarily FE, EERE and other intergovernmental organizations) are used to ensure work being performed supports the organization's mission and strategic objectives. Thorough up-front planning includes analysis of various alternatives available to accomplish the work, as well as assessment of progress achieved toward established office and programmatic milestones. Within NETL, these planning functions are accomplished in conjunction with established planning groups such as Technology Managers and crosscutting teams at NETL, as well as HQ DOE Program Managers working with stakeholders external to NETL. Planning is done in conjunction with the Appropriations and Budget Process. NETL Project Management Divisions and FPMs provide support and input to annual planning and budgeting, in accordance with their areas of technology responsibility. The more significant technology development subprogram areas for the various Program Areas and responsible Divisions are delineated in Table 3.1. As previously mentioned, support to the EERE and OE programs includes other than RD&D projects, but the research areas are also termed technology development subprograms for purposes of discussion.

| Table 3.1 Technology Development Program Areas | | |
|---|--|--|
| Program Area | Technology Development Subprogram | Responsible Project Management Division |
| Coal and Power Systems | Clean Coal Power Initiative (Major Demonstrations) | Major Projects |
| | Carbon Sequestration | Environment & Climate |
| | Environmental and Water Resources | Environment & Climate |
| | Distributed Generation (Fuel Cells) | Power Systems |
| | Advanced Turbines | Power Systems |
| | Integrated Gasification Combined Cycle | Gasification & Fuels |
| | Advanced Combustion Systems | Gasification & Fuels |
| | Advanced Research (Crosscutting) | Gasification & Fuels |
| | Coal Fuels and Hydrogen | Gasification & Fuels |
| | FutureGen | Advanced Energy Initiatives |
| Natural Gas Supply, Oil Supply and Environmental Solutions | Oil Exploration and Production | Natural Gas & Oil Project Management |
| | Effective Environmental Protections | Natural Gas & Oil Project Management |
| | Reservoir Life Extension/Management | Natural Gas & Oil Project Management |
| | Natural Gas Exploration and Production | Natural Gas & Oil Project Management |
| | Methane Hydrates | Natural Gas & Oil Project Management |
| Energy Efficiency and Renewable Energy | Buildings Technology | Buildings & Industrial Technologies |
| | Federal Energy Management Program | Buildings & Industrial Technologies |
| | Industrial Technologies | Buildings & Industrial Technologies |
| | FreedomCar and Vehicle Technologies | Power & Vehicles Technologies |
| | Weatherization and Intergovernmental Program | Intergovernmental Projects & Outreach |
| Electricity Delivery and Energy Reliability | Transmission and Distribution R&D | Technical & Project Management |
| | Planning, Siting and Analysis | Technical & Project Management |
| | Infrastructure, Security and Energy Restoration | Technical & Project Management |

Each of these subprogram areas has associated planning documents that are updated annually. [NETL Procedure 122.1-1, *Planning and Evaluation Process*](#), delineates the relationship and responsibilities of various planning documents for the FE program responsibilities. FPMs must read and understand these planning documents to effectively execute projects assigned in the respective program areas. Annual Plans that define project management-related activities include:

- Multiyear Program Plans. Multi-year planning documents that contain a description of the technology development subprogram, the roadmap for RD&D activities, a description of the DOE mission area to which the technology pertains, a situation analysis (both external and internal), a portfolio and market analysis, planning assumptions, technical goals and objectives, a multi-year strategy, and a funding profile.
- Annual Operating Plans (AOPs). Delineate how the funding for any given technology development subprogram area is planned to be obligated throughout the fiscal year among financial assistance Recipients, FOAs, National Laboratories through FWPs and in-house research; when the transaction is to occur; and the responsible program contact. This document is an agreement as to how funds will be spent in the current fiscal year and is accompanied by the Project Funding Authorization from HQ DOE. The AOP shows the relationship to Key Activities contained in the Annual Appropriations Bill and project specific activities and milestones. The implementing Division Director is not involved in these decisions.
- Annual Procurement Plan. Developed annually based on the current year AOP and a projection of requirements for the subsequent fiscal year. The plan is maintained by the NETL Acquisition and Assistance Division (AAD). It contains a schedule of key milestones associated with all planned competitive and non-competitive requirements for both acquisition and assistance actions. Since competitive procurements typically require about nine to twelve months from start to finish, it is considered a best practice to initiate the requirement in the current year with the award early in the subsequent fiscal years which also diminishes uncosted obligations. This is initiated by the Technology Manager or Program Manager, with input from Division Directors and FPMs.

3.1 PROJECT MANAGEMENT INVOLVEMENT AND RESPONSIBILITIES

NETL FPMs are assigned projects in one or more technology development subprogram areas. They are required to monitor cost, schedule and scope aspects of the assigned projects, and assess whether overall technical objectives are achieved. To be effective, they are also required to develop and maintain knowledge of the scientific and engineering status and developments associated with the subprogram areas and the broader picture of RD&D, including program goals, objectives and strategies. This knowledge is obtained through a combination of formal education, participation in seminars and conferences, review of literature, work experience, and established communication networks. Based on this project specific and program knowledge, NETL FPMs support the planning and budgeting processes by:

- Providing Program/Technology Management teams recommendations on technical performance, budget and schedule requirements;

- Providing input for Requirements Documents, which defines or redefines program/project objectives for new or existing RD&D needs;
- Recommending and defining FOA requirements;
- Assessing the status of RD&D activities, recommending redirection or cancellation of projects or groups of projects, and justifying the continuation of RD&D;
- Maintaining project-specific data on cost, schedule, and scope completion status, providing estimates of out-year funding requirements and providing milestones for planning documents;
- Assisting Program/Technology Management teams in development of program planning and budgeting documentation; and,
- Identifying elements of risk relative to technical approach, procurement strategy, etc.

3.2 PROJECT MANAGEMENT TOOLS AND AUTOMATED SYSTEMS

A NETL FPM has access to several tools and uses numerous automated systems and documentation to effectively meet the expectations of internal and external stakeholders. FPMs must be competent in their use and functions.

Award Mechanism The FPM must understand and use the mechanisms of the financial assistance award instrument or other transaction authority to effectively implement the RD&D project. This is the primary document that delineates the terms and conditions of the funding agreement. It includes the Statement of Project Objectives (SOPO), the overall budget and cost-sharing, period of performance, and deliverables. As appropriate the Statement of Substantial Involvement clearly identifies the expected roles and responsibilities of the recipient and DOE in the execution of the agreement.

Project Management Plan Beginning in fiscal year 2008, every new or amended RD&D project is to have a PMP (or a plan by some other name, e.g. research plan). Amendments to existing financial assistance agreements were minimized, with a focus on those projects where the outcome can be influenced by the up front planning. Minimum requirements for the PMP, which includes an approach to risk management, are provided in Appendix D and are tailored to the nature of the projects. More complex projects are likely to have a separate Risk Management Plan. Additional discussion of the PMP is provided in Section 8.1.3.

Management Progress Reports Formal progress reporting for financial assistance awards is no more frequently than quarterly or less frequently than annually, unless a deviation from a financial assistance rule is obtained for more frequent reporting. The recipient must formally report progress relative to the scope, cost, schedule and milestones

established by the current PMP (baseline). The recipient is responsible and accountable for managing the work elements that constitute the project within the planned schedule and budget. Conscientious review and analysis of management progress reports (typically quarterly, sometimes monthly) and maintenance of other communication channels are critical functions of the FPM. Specific emphasis should be placed on evaluation of documented and perceived variances, as well as steps being taken to mitigate problems. The Recipients and FPMs are encouraged to use appropriate project management software, such as MicroSoft Project or Plus, for overall planning and execution of more complex projects. While the FPM relies on accurate and timely periodic reporting from the Recipient, it is also necessary to conduct site visits, telephone calls, and review meetings. The FPM has access to and should make use of electronic communication tools such as E-mail correspondence, televideo conferencing, and Net meetings.

[Federal Information Tracking System \(FITS\)](#) The FPM is notified electronically through FITS when award deliverables identified in the Reporting Requirements Checklist are received and require technical review. FITS is used to ensure timely receipt and acceptance of reports. As a practical matter, the FPM must understand reporting requirements and ensure that deliverables are accepted or rejected in a timely manner. Note that formal reporting on RD&D projects managed under the auspices of the [EERE Project Management Center](#) is done through its web site.

[ProMIS](#) The FPM is responsible for maintaining specified data fields in this information repository. Numerous organizational elements expect that data is current and accurate on a monthly basis; more frequent updates may also be requested. FPMs must become proficient in the use of ProMIS and ensure that relevant project information is maintained and current. There are numerous features of ProMIS such as the funding, obligation and cost fields that should be useful in project execution. This will be affected by STRIPES.

[Procurement Desktop](#) This AAD Intranet tool contains procurement policies and procedures, including links to information and documents necessary for the FPM to perform assigned duties. The FPM must be knowledgeable of the information contained therein (the index is a good guide) and work with AAD personnel in the prosecution of actions.

[Strategic Integrated Procurement Enterprise System \(STRIPES\)](#) STRIPES is a DOE-wide, web-based procurement and financial assistance system that standardizes business processes across DOE's procurement activities. Deployment is scheduled for June 2008 and initial training has begun. FPMs will need to obtain requisite training, because several existing processes they now use or rely on will be impacted. This includes document processing, such as SOPOs and Determination of Non-competitive Financial Assistance justifications, procurement requests, evaluation of applications, and procurement status information.

[Industry Interactive Procurement System \(IIPS\)](#) and [Grants.Gov](#) These Web-based systems are the mechanisms by which FOAs are made public and interested parties

submit financial assistance applications. The FPM must understand how to navigate these systems to access applications for review. This will be affected by STRIPES.

[Vendor Invoice Acceptance System \(VIAS\)](#) There are several methods of payment used under financial assistance awards as described on the [Procurement Desktop](#). The FPM must understand the [payment method](#) for each assigned award and be knowledgeable in the use of [VIAS](#) for approval of invoices and modification of STARS accrual values, as required.

[Program Documentation](#) The FPM must be familiar with the previously identified planning documents to understand where the assigned project fits into the overall Program Strategy. Annual Operating Plans provide an account of how funds are to be expended in that year for the corresponding technology development subprogram. Annual Procurement Plans delineate the general requirements and overall schedule for planned FOAs.

[Integrated Project Team \(IPT\)](#) The FPM must maintain frequent and effective communications among team members and work cooperatively within the team, and identify external assistance as needed to resolve issues. External peer reviews, site support contractor evaluations, review boards and systems analysis studies can and should be used appropriately at decision points.

[Budget Directive \(BD\) System](#) The BD process is initiated by the Technology Manager and proceeds through the Division Director and Budget Focal to approve funding of individual projects. Funds available in the division account can then be committed to projects through Procurement Requests (PRs) initiated by the FPM.

[Procurement Request Authorization Tracking System \(PRATS\)](#) The FPM is responsible for initiating all PRs electronically in PRATS. The FPM must be proficient in the use of the system and ensure that all required fields are properly filled in and that supporting documentation is provided as required. This will be affected by STRIPES. The October 21, 2007 deployment of the STARS or STRIPES (SOS) application is an initial change prompted by STRIPES. The SOS application includes business process changes and numerical naming changes, and is used to obtain requisition, solicitation, and purchase order and modification numbers for all procurement actions. FPMs should have all received training in the use of SOS.

[WinSAGA](#) (Windows-based Systems Approach to Grants Administration) is specific to the EERE state grant programs. It gives DOE and States an intuitive grant application and reporting software utility. The two primary modules of WinSAGA are the Grant Module and the State Application Module. The Grant includes the SF424 (also called the Application), Procurement Request, Budget, Quarterly and Semi-Annual Reports, as well as other related information. The State Application (also referred to as the State Plan) consists of the Checklist, Annual File (information that changes from year to year), Master File (information that does not usually change from year to year), Assurances, and other related information. This will likely be affected by STRIPES.

Standard Accounting and Reporting System (STARS) The FPM must have working knowledge of STARS and understand the accounting terms and coding needed to properly process PRs and payments. In addition, STARS provides ProMIS financial data and is used to query funding and costing status for individual financial assistance awards.

Electronic Proposal Management Application (ePMA) Those FPMs that have responsibilities for review and acceptance of funding proposals submitted by National Laboratories external to NETL may need to be registered in and proficient in the use of ePMA. This application was developed by the Office of Basic Energy Science and is focused on the electronic receipt and processing of National Laboratory proposals. This automated process has limited use and utility within the programs at NETL; its future use is uncertain.

The Federal Government and the DOE continue to modify and enhance computer-based processes and systems. It is a given that electronic systems will come and go, thus it is incumbent on the FPM to keep abreast of changing requirements—flexibility and computer literacy are key.

4.0 INTEGRATED PROJECT TEAM

The Integrated Project Team (IPT) consists of personnel who collectively have the requisite knowledge, skills and abilities and who are assigned the appropriate roles and responsibilities to implement the project and ensure project goals and objectives are achieved. For certain positions on the IPT, this may require satisfying specific training and/or certification requirements. IPT composition is tailored based upon consideration of the type of project; technological maturation level; financial assistance mechanism; administrative and technical complexity; technical, cost and schedule risk; stakeholder visibility and management prerogative.

4.1 FUNDING OPPORTUNITY ANNOUNCEMENT IPT

The formal IPT for competitive FOAs—also called the Procurement Team—consists solely of Federal employees and typically only consists of the FPM, Contract Specialist (CS) and Contracting Officer (CO). The FPM is assigned by the appropriate NETL project management Division Director and serves as the IPT Lead and primary interface with DOE project management and program officials. The CS is responsible for the day-to-day administration of the FOA process on behalf of the CO and serves as the interface between Applicants and the government. The CO is responsible for the integrity of the FOA process. As appropriate, personnel in other disciplines identified in Section 4.3 may be consulted ad hoc. During the Application technical evaluation process, the FPM will use the services of a Merit Review Panel (consisting of no less than three peer reviewers for each panel) which may include non-Federal peer reviewers. The IPT will also coordinate with other entities integral to the evaluation and selection process, such as the Procurement Strategy Team (PST), Merit Review Panel (MRP), NETL Senior Management and the Selection Official (SO).

The FOA IPT is dissolved upon completion of the project. A unique IPT is assigned to each RD&D project Application selected for award.

4.2 RD&D PROJECT IPT

The formal IPT for RD&D projects consists of representatives from both the Federal and Recipient organizations. The culture at NETL strives to establish a true public-private partnership through active coordination and communication vital to ensure the mutual set of goals and objectives are achieved.

At a minimum, Federal membership includes the FPM, CS, and CO. As appropriate, personnel in other disciplines identified in Section 4.3 may be consulted ad hoc. For larger, more complex, higher visibility RD&D projects, such as major demonstrations, these personnel could be formal members.

The FPM is assigned by the appropriate NETL project management Division Director and serves as the IPT Lead and primary interface with DOE project management and program officials. The CS is responsible for the day-to-day administration of the financial assistance award instrument on behalf of the CO. The CO is the only Government representative authorized to modify the award instrument and accept project reports and other deliverables.

For the vast majority of NETL RD&D projects, the FPM is also the Project Officer (PO). The PO is assigned by the CO and is responsible for advising the CO regarding technical performance, in a capacity that is similar to that of a COR for a government contract. The PO has the authority to issue written technical advice which suggests redirecting the project work (e.g., by changing the emphasis among different tasks) or pursuing specific lines of inquiry likely to assist in accomplishing the SOPO. The PO is not authorized to issue any technical advice which constitutes work not within the scope of the SOPO; which in any manner causes an increase or decrease in the total estimated cost or in the time required for performance of the project; which has the effect of changing any of the terms or conditions of the financial assistance award instrument; or which interferes with the Recipient's right to perform the project in accordance with the terms and conditions of the financial assistance award instrument.

For RD&D projects executed through cooperative agreements it is expected that DOE technical personnel (the PO and others) are substantially involved in planning, performance, program integration and change control activities. This interaction with the Recipient is critical to ensure program objectives are achieved. Attainment of program objectives requires that high quality technical results are delivered by completing the project technical scope in accordance with the budget and schedule constraints and that project risks are effectively handled. The FPM must ensure that the Statement of Substantial Involvement included in the FOA and negotiated in the cooperative agreement clearly delineates the required level of involvement. Section 8.2.4 provides specific guidance on what should be considered.

It is expected that the Recipient of a financial assistance award instrument would mirror the Government's IPT membership with its own. The position analogous to the FPM is the Recipient's Principal Investigator (PI). The position analogous to the CO or CS is the Recipient's Business Manager. Many of the same or similar disciplines as listed in Section 4.3 would be included either as ad hoc or formal members. Representatives of major subcontractor's should also be represented.

The Recipient is responsible and accountable for managing the work elements that constitute the project within the planned schedule and budget. A Recipient has full responsibility for the conduct of the project or activity supported and for the results achieved. The Recipient manages the project to assure adherence to performance goals, success criteria, time schedules, spend plans and budget, and risk events as appropriate to the project and the terms of the agreement. The Recipient is responsible for managing the activities of and pass through requirements to any sub-awards. The expectations are that a Project Management Plan would be submitted with the application, DOE would come to an understanding of how they plan to manage the project, and DOE acknowledges that they have an appropriate project management system in place.

The Participant/Recipient is expected to abide by their internal processes and procedures to manage the work to achieve project objectives within scope, schedule and budget, and provide progress reports relative to an appropriate Project Management Plan, as required by the Financial Assistance Agreement. A part of this effort is to update the Project Management, Risk Management and other plans to accurately reflect future work. The FPM must ensure that the Statement of Substantial Involvement included in the FOA and negotiated in the cooperative agreement clearly delineates the expectations for the recipient. Section 8.2.4 provides specific guidance on what should be considered.

Overall, Federal members of the IPT are responsible for government oversight, including but not necessarily limited to:

- Negotiation of the financial assistance award instrument, including project objectives, scope, budget and schedule;
- Ensuring the project is implemented consistent with DOE mission requirements and project management principles;
- Overseeing project definition, design, construction, environmental, safety and health, and other aspects in accordance with public law, regulations and Executive orders, such as the National Environmental Policy Act (NEPA) and intellectual property provisions of the agreement;
- Conducting periodic reviews and assessments of project performance and status against metrics, baselines and milestones;
- Reviewing and commenting on key project documentation and deliverables; and,

- Communicating and coordinating project status with and implementing guidance from DOE management and program officials.

4.3 OTHER FEDERAL IPT MEMBERSHIP

Other Federal personnel to be considered for membership on the IPT, either on an ad hoc or formal basis, include a:

- Cost/Price Analyst. The Cost/Price Analyst provides pre-announcement support, if necessary, by reviewing and/or preparing instructions for the applicant's budget justification for the specific FOA. The Cost/Price Analyst may also provide guidance as to whether certain terms and conditions are applicable (e.g. Allowable Cost and Payment, Cost Accounting Standards, Ceilings on Indirect Rates, etc.) and should be included in the model assistance instrument; and may also review the cost sharing requirements for the specific FOA. Preliminary budget evaluation support is limited to post-selection reviews, if required, and could include: review of each budget in accordance with application preparation instructions and the applicable evaluation criteria; identifying weaknesses and deficiencies in the budget justification; developing clarification questions and comments; contacting the Defense Contract Audit Agency (DCAA) for current rates and request DCAA audit if necessary; preparing the preliminary cost report; participating in oral discussions; review of revised cost details; and developing most probable cost to the Government. For applications selected for award in excess of \$15 million, a Cost/Price Analyst is typically assigned, but this service can be requested on smaller selections. For financial assistance awards, the Cost/Price Analyst may participate in the negotiation process by: conducting a comprehensive cost/price analysis; requesting pre-award audits, if necessary; reviewing the Technical Evaluation of Budget; and assisting with cost negotiation, including but not limited to indirect costs. Post-award, the Cost/Price Analyst provides financial and business advice, requests cost-incurred audits, if necessary, conducts post-award cost/price analysis, and conducts post-award cost/price analysis.
- Project Engineer. The Project Engineer is responsible for providing technology and engineering expertise and guidance.
- Systems Engineer/Analyst. A Systems Engineer/Analyst is responsible for assessing technical and other performance results for individual projects as they relate to achievement of programmatic goals and targets. Typically, economic, systems and benefits studies would be conducted in accordance with standard NETL practices prior to significant program decisions.
- Special Technical/Engineering/Cost Support. The FPM may require the assistance of various experts during the planning and execution of projects. In many cases, these experts may be obtained through NETL's site support contractors, as well as the in-house research staff. These experts are typically retained to assess the recipient's

project documentation to determine the reasonableness of technical approach, performance results, and budget and cost implications, prior to significant program decisions.

- National Environmental Policy Act (NEPA) Document Manager. The NEPA Document Manager has lead responsibility for implementing the NEPA process. Included in this is coordinating with the Recipient on the Environmental Information Volume (EIV) and managing the Government's NEPA contractor.
- Intellectual Property (IP) Attorney. The IP Attorney is responsible for writing, reviewing and interpreting financial assistance award instrument IP provisions (i.e., unlimited rights data, limited rights data, restricted computer software and protected data) for legal sufficiency. The IP Attorney also evaluates terms and conditions; interprets legislative and regulatory language and executive branch policy directives; and reviews and advises on the process of obtaining patents and licensing of those patents for commercial use.
- General Counsel. General Counsel provides the full range of legal services required to support the project, including: interpreting state and federal statutory and regulatory requirements; writing and reviewing FOA and financial assistance award instrument terms and conditions for legal sufficiency, and interprets legislative and regulatory language and executive branch policy directives; processing requests for information submitted pursuant to the Privacy Act and the Freedom of Information Act (FOIA); implementing ethics and conflict of interest policies and regulations; advising on matters pertaining to authorization and appropriation laws, cost accounting standards, cost and pricing policies, and cost principles; and represents the Government and takes appropriate legal action to protect the interests of the Department in litigation and administrative proceedings. [Note: The responsibilities of the IP Attorney and General Counsel can be combined.]
- Property Specialist. The Property Specialist has lead responsibility for controlling Government-furnished property and property acquired under the performance of a financial assistance award instrument to ensure the Recipient has established and maintains a system to control, protect, preserve and maintain all Government property.
- Public Affairs Liaison. The Public Affairs Liaison serves as NETL's and the IPT's interface with Congressional liaison, media relations and the general public. The Public Affairs Liaison also assists with development of project brochures and fact sheets.

Personnel from other disciplines/functions are also involved but are typically in support of the Federal IPT membership. These include Financial Specialists and Document Control.

5.0 RISK ASSESSMENT AND MANAGEMENT

5.1 DEFINITION OF PROJECT RISK

Project Risk is the *probability* that an adverse event (internal or external to the project) could *impact* the ability to achieve overall project objectives within scope, cost, schedule, and technical constraints. Failure to recognize and manage project risk successfully can result in harm to both NETL as an institution and to individual programs.

Risk is an inevitable component of all project activities. Risk is always present, since the future outcome of any ongoing activity cannot be guaranteed.

A high level of risk may be a necessary element of a project that seeks to achieve a high level of technological progress. In this sense, the presence of risk may represent an important opportunity, as much as an operational concern. An RD&D project that has no or very little technical risk is not likely to extend the advancements being pursued by the Program.

As a result, we do not seek to avoid risk in the selection and overview of projects. Rather, we seek to ensure that risk is managed both efficiently and effectively. Identifying risk events and corrective actions that may be required, if events occur, will minimize disruption to the project.

5.2 DEFINITION OF RISK MANAGEMENT

The Project Management Institute's *A Guide to the Project Management Book of Knowledge* defines risk management as "the systematic process of identifying, analyzing, and responding to project risk." Project risk events are uncertain future events that, if realized, impact the success of the project. Since risk is inherent to all projects, regardless of the level of complexity, cost, or visibility, project risk must be addressed to the appropriate level for every project. The depth of analysis and the complexity and cost of the resulting risk management plan will differ from project to project. This concept of 'tailoring' in risk management acknowledges that different projects require different risk management approaches to appropriately address project risk.

Project risk is typically managed by quantifying tangible aspects of risk events such as the likelihood of occurrence and the potential impact of the event. Once quantified in this manner, well-established methods for prioritizing the different risk events may be employed. This enables the Federal Project Manager (FPM) and other Integrated Project Team (IPT) members to identify the highest priority risks and then focus on those risks in planning and implementing a project through a financial assistance agreement.

Throughout the remainder of this section, the FPM has been identified as having primary responsibility for all risk-related activity. However, full responsibility includes the entire Government IPT, as well as NETL management, stakeholders, subject matter experts, and all others with interest in the project. Of particular note are procurement (the CO and

CS) and legal personnel who have responsibility and authority for terms and conditions of the agreement (e.g., intellectual property provisions) and many other considerations, such as the financial stability of the applicant. The overall approach identifies the FPM as the focal point for documenting project risk considerations in a single location to consolidate available information.

The NETL Risk Assessment and Management process includes *risk identification* (as to presence) and *evaluation* (as to nature and severity). Both activities are subsumed in the concept of *risk assessment*. The process also includes *risk response* (as to actions taken on the basis of a completed risk assessment) and *risk mitigation* (as to reduction in the likelihood and/or severity of risk events based on the response actions taken). Both activities are subsumed in the concept of *risk management*.

5.3 PURPOSE

Risk assessment and management is an ongoing activity at NETL. It occurs continually in the existing processes of developing a FOA, evaluating applications, negotiating awards, and monitoring the performance of Recipients. The primary purpose of this section of the guidelines is to provide a formal framework to document risk assessment and management activities for individual projects. The use of a formal overall process is necessary and desirable in order to assure (1) a high level of awareness and participation across the institution, (2) commonality in approach, (3) documentation of risk assessment and actions, (4) archiving of information on results, and (5) effective extraction of lessons-learned for future application. Risk assessment and management is not considered a separate activity, but is rather a part of what NETL does. It is important to document what we in risk planning, and to document and follow through with actions taken to deal with risk events.

5.4 OVERALL CONCEPTS

The NETL process is tailored to the range of project types that NETL administers primarily through financial assistance agreements, but is equally applicable to contracts, field work proposals, and other execution mechanisms. In most respects, the financial assistance agreement is structured to ensure that identified risks are allocated and handled during project execution. Thus, the FPM first focuses on identifying potential areas of risk following project selection that should be considered during initial discussions and subsequent negotiations with the applicant prior to award. Effective risk management actions taken in this time period will prepare for and facilitate the subsequent risk monitoring, response, and mitigation actions to be undertaken during project execution.

Once a project is underway, risk management is a shared responsibility of both the Government and the Recipient. The responsibility of the Recipient is in accordance with an agreed-upon risk management section of the Project Management Plan (PMP), and with risks assessed by the Government at each budget decision point prior to funding the next increment of work or when significant revisions to the agreement occur. However,

the Government has a responsibility to monitor the continuing status of project risk and the effectiveness of the Recipient's risk management activities.

The key overall concepts of the NETL process include:

- The strategic goals and objectives of the applicable program area(s) are well understood. Given that RD&D projects are to satisfy identified program needs and requirements (such as technology and knowledge gaps, budget profiles, performance periods and system integration), constraints, issues and uncertainties are identified during the initial planning of a FOA. The areas of potential risk for resulting projects are documented in the Procurement Strategy Document.
- The FOA which initiates the specific RD&D project has well developed and understood technical requirements, as well as defined performance expectations for the project. A PMP is submitted with each application, the SOPO requires maintenance of a current PMP, and progress is reported relative to the PMP.
- The application evaluation criteria, as identified in the FOA and the Evaluation and Selection Plan, include a criterion that considers the adequacy of the PMP and the approach to managing risk. Well documented strengths and weakness for each application aid in the identification of risk associated with the project being proposed and the potential Recipient's ability to manage the project.
- A thoughtful Technical Evaluation of Budget (TEB) is conducted after a common understanding of the SOPO is established between the FPM and the potential Recipient. Project objectives and task descriptions must be clearly delineated. This evaluation may be supplemented by additional cost and financial analysis conducted by AAD personnel. These activities aid in the identification of risks, as well as mitigation strategies considered at the time of the award.
- The resulting Financial Assistance award is structured to ensure that identified risks are allocated and handled during project execution. As appropriate, the Recipient modifies and maintains the PMP, and risk management plan to accommodate terms and conditions of the negotiated award. For cooperative agreements, the Statement of Substantial Involvement clearly delineates the expectations of DOE and the Recipient, with specific consideration of project and risk management. There should be a clear understanding of the processes and procedures employed by the Recipient to manage the project, including commitments to appropriately manage risk.
- The FPM leads the IPT through the structured approach to document identified risks, evaluations conducted, and methods to handle risks. The two step process is described in the following sections. It consists of an initial Assessment of Project Risk Potential to screen inherently low risk projects from further consideration, followed by the development of a Project Risk Register if warranted. ProMIS is used as the archival system for risk related documentation.

- The FPM is to continually assess and monitor risk as the project progresses. This includes timely review of progress reports and approval of deliverables, as required. Effective project reviews and peer reviews are useful mechanisms to engage management in the assessment of progress and obtain input on corrective actions, if required. The Project Risk Register is a useful tool for tracking risk events and the outcomes of planned mitigation measures.

5.5 CATEGORIES OF RISK

The NETL Risk Assessment and Management process has six main categories for identifying risks (See Table 5.1). These categories may easily be updated on a periodic basis should it be necessary. Uniformity in terminology and structure is to be maintained. To facilitate the thought process, the NETL Categories of Risk can be characterized by common considerations (See [Appendix C](#)) when identifying risk events. It is important to realize that this listing of considerations is not exhaustive and is not intended to be a checklist, but rather provides a rational line of questioning to be pursued. Each project is assessed relative to its unique characteristics.

| Table 5.1 – Risk Categories | |
|--|---|
| Category | Description |
| Financial | Issues associated with project financing and organizational commitment that jeopardize realization of project milestones and objectives |
| Cost/Schedule | Cost or schedule issues that jeopardize realization of project milestones and objectives |
| Technical/Scope | Technical- or scope-related items that jeopardize realization of project milestones and objectives |
| Management, Planning, & Oversight | Management-related items, including planning and oversight concerns, that jeopardize realization of project milestones and objectives |
| ES&H | NEPA and other ES&H items that jeopardize realization of project milestones and objectives |
| External Influences | Programmatic and other factors external to the project that jeopardize realization of project milestones and objectives |

5.6 ASSESSMENT OF PROJECT RISK POTENTIAL

In order to properly reflect risk priorities and concentrate effort on the most important projects, an initial screening of overall project risk potential is conducted in conjunction with the Technical Evaluation of Budget. For each proposed agreement, the FPM completes an Assessment of Project Risk Potential (See [Appendix C](#)) that is signed by IPT members, as required. As with any risk process, risk potential screening is accomplished in a group setting to obtain broad input from knowledgeable and experienced individuals. No single individual can adequately assess project risk. Careful

consideration should be given to who should provide input. At NETL this would include the IPT members, Technology/HQ Program Managers, subject matter experts, individuals that reviewed applications, and additional NETL management personnel. It may be most efficient to convene a meeting where knowledgeable persons would assess multiple, related projects, such as those resulting from a single FOA and managed within the same technical division. Each project is rated separately.

This process employs a numerical rating/scoring system, which is based upon the six NETL Categories of Risk, and one or more general topics relating to each category. Each topic is assigned a score, and the scores are added together to obtain the total risk potential. To conduct this initial assessment, the FPM should have access to and understand the information noted below. However, this list is not to be considered prescriptive, but rather a basis to begin the screening process.

- Program Documentation – Strategic Plan, Annual Operating Plan
- Procurement Strategy Documentation
- Application Strengths and Weaknesses, and other reviewer comments
- Pertinent Portions of the Selection Statement, recommendations of the Merit Review Committee, programmatic instructions/funding limitations
- Proposed Statement of Project Objectives
- Proposed Project Management Plan, and Risk Management Plan if warranted.
- Technical Evaluation of Budget (preliminary considerations)
- Available historical information, e.g., past performance, prior RD&D

The intent of the initial assessment is similar to the approach taken by the Government in screening projects to assess requirements for compliance with the National Environmental Policy Act. It is recognized that there are categories of projects that have inherently low ES&H risk such that further consideration is not necessary, while others require additional consideration, such as development of an Environmental Impact Statement. Similarly, assessment of risk potential identifies those projects that are inherently low risk and are handled through typical agreement terms and conditions. Further risk assessment is not required provided the FPM monitors project activities and exercises due diligence in review of deliverables. Just as some items are excluded from further assessment; it may be desirable to subject projects to a higher degree of assessment and monitoring. This applies to projects whose value, complexity, visibility, and/or programmatic impacts are significant. In some cases it may also be necessary to contract the services of an external organization to assist in performing risk assessment.

The FPM requires management concurrence for any project which, by the assessment of risk potential score, will be excluded from the more detailed Risk Assessment and Management process or will require a higher degree of assessment and monitoring. The technical division director must concur with each completed assessment of risk potential, and determines which projects will require additional management considerations.

5.7 DETAILED RISK ASSESSMENT AND MANAGEMENT

The first step in performing a detailed risk assessment is to identify and evaluate potential sources of risk, referred to as *risk events*. These are uncertain conditions that, if they occur, would have an effect on the project's objectives. Risk identification relies upon the information sources previously defined in [Section 5.6](#), as well as any updates to scope, schedule and budget information. Participants in the process include the FPM, appropriate IPT members, subject matter experts, and others as required. Again, the process is accomplished in a group setting to obtain broad input from knowledgeable and experienced individuals. Once all potential risk events have been identified, each is evaluated based upon probability and impact to determine the degree of risk and to identify response and mitigation strategies. [Appendix C](#) illustrates the methodology used to assess each event's degree of risk and resultant activities to manage those events and provides several formats for documenting results. Documentation is further discussed in [Section 5.8](#), below.

With this two dimensional rating system either a low, moderate, or high degree of risk is assigned to each event within the given risk category. If more than one high-risk element is present in any given category, a notation is added assigning a high degree of risk to that entire category. If three or more of the five categories contain high-risk elements, a further notation assigns a very high degree of risk to the entire project.

While the assessment of risk potential may be accomplished prior to discussions with the applicant, the more detailed process is conducted in parallel with the TEB and negotiations. The resulting risk documentation should be based on the final SOPO, preliminary PMP and available budget documentation, but should include those uncertainties that were resolved during discussions with the applicant and thus handled in the SOPO and discussed in the TEB document. Similarly, risk events addressed by procurement or other personnel during negotiations should be identified and documented as to how they were handled; these items are likely to be documented in the Negotiation Memorandum and supporting information (e.g., TEB, Cost/Price Report). The objective is to develop a single document (i.e., Project Risk Register) that includes a comprehensive list of risk events, how they were handled as a result of negotiations and award, and how the remaining risks will be handled during project execution. This initial Project Risk Register reflects agreement reached with the Recipient on the basis of scope, schedule, and cost, and how the Recipient plans to manage the work.

The FPM and the CS will work together to develop an initial list of risk events prior to discussions with the applicant. The FPM should facilitate at least one Risk Review meeting with IPT members and management, as appropriate. In many cases, a single

meeting may be sufficient to identify and evaluate risk events, and determine how they will be handled. However, for more significant projects, such as commercial-scale demonstrations under CCPI, there are typically protracted periods of fact-finding, project definition, and negotiation. In these cases, the detailed risk assessment and management process would have several iterations and meetings, possibly over an entire year and may involve the services of an external organization to assist in performing risk assessment.

5.8 DOCUMENTATION

Each step in the two step process has unique documentation, as indicated by the examples in [Appendix C](#). The first step simply screens inherently low risk projects from further consideration. The Assessment of Project Risk Potential (See [Appendix C](#)) documents that this initial assessment was done. It is signed by the IPT and concurred on by the technical division director. If management agrees that no additional assessment is needed because the project is inherently low risk, then the cover page is signed (indicating approval) and this represents the final risk documentation. The document is posted by the FPM under the “files” tab in ProMIS and forwarded to the CS.

When completing the Assessment of Project Risk Potential, it is prudent to make use of the rationale/comments section. Providing comments for each category helps the division director and others to clearly understand the basis for the resulting score and provides more complete documentation. This documentation will be useful during project execution, especially if additional assessment is necessary in later phases of a project. In addition, these comments are an initial record of the areas of uncertainty that were considered by the IPT and will aid in the development of the Project Risk Register, if required.

Documentation for step two is the Project Risk Register. It includes a more detailed assessment of risk events and how these uncertainties are being or would be handled. Implicit in the definition of risk is the concept that risks are future events and that there is uncertainty associated with the project if these risk events occur. Therefore, there is a need to consider the probability of a risk event occurring as well as the impact (consequence) if it occurs. The combination of these two factors determines the degree of risk. For example, an event with a low probability of occurring, yet with severe impact, may be a candidate for handling. Conversely, an event with a high probability of occurring, but with impacts that do not directly affect a project, may be acceptable and require no handling.

The documented Risk Register reflects the DOE’s perspective of risk associated with the project, as well as actions taken to ensure that the award addresses our concerns and an understanding of how DOE and the Recipient plans to manage known risk events. While the Recipient is expected to incorporate DOE’s concerns in their planning, it is expected that DOE will provide sufficient oversight to ensure the project is progressing as planned. Those projects that require development of a Risk Register would also require that the Recipient’s PMP have a comprehensive approach to managing risk most likely organized around the project Work Breakdown Structure (WBS). The Recipient’s risk management

planning and strategies are not intended to replace DOE's assessment, but should complement and would be referenced in DOE's perspective. Note that two format options are provided for the Risk Register in [Appendix C](#). For some projects, it may be sufficient to use a format organized around the six categories of risk, or some subset of these categories. This approach is likely to capture more general risk events that are handled during negotiation. Since the Recipient's risk management methodology is likely to be organized around the project WBS (typically the task structure and performing organization) it may be most informative to organize the DOE's Risk Register around a structure similar to the Recipient's. In this way the risk events are directly related to unique work elements. Alternatively, a combination of approaches may be appropriate to document DOE's assessment and management approach.

Each potential risk event has a unique identifier and is accompanied by brief explanatory notes maintained by the FPM which:

- Explain the basis (detailed description, probability, impact, and resultant evaluation) for assigning the degree of risk.
- Identify potential response and mitigation strategies to be adopted as the next step in the process (e.g., events and actions to be highlighted in the PMP to be prepared by the Recipient subsequent to award, and priorities with respect to the level and/or focus of monitoring during the project execution).
- Serve as documentation for any subsequent review activities and/or lessons-learned analyses.

A Project Risk Register continuation sheet is provided for both options contained in [Appendix C](#) as a suggested format for a more detailed account of a particular risk event identified in the Risk Register.

Completing the Project Risk Register should not be overly cumbersome, since one would refer to activities routinely conducted and other existing documentation. The intent is to document to a great extent what NETL already does. For example, in the financial risk category one may have identified a concern for the overall financial stability of the organization to receive the grant. One should refer to the "at risk assessment" conducted by AAD personnel and what mitigation strategy, if any, would be included in the agreement. Other obvious risk-related analysis and response approaches include: NEPA determinations, pre-award audits, resolution of uncertainties during negotiations, structuring agreements with distinct decision points and budget period funding limitations, appropriate level of reporting, and effective project kick-off and periodic review meetings. Not all identified risk events warrant a response; some are likely to be accepted or decisions deferred until later. This is especially true for RD&D projects where subsequent activities are dependent on satisfactory results of the current research phase. There may be other risk events that require separate and more detailed explanation. In these cases, the FPM should identify the event on the Project Risk Register, which serves as a registry for all events, and provide the detail on separate

continuation sheets. The risk assessment must be signed by those involved in the process and be consistent with the resulting agreement. The Project Risk Register is posted by the FPM under the “files” tab in ProMIS and forwarded to the CS.

The NETL Project Risk Register is considered a “living document.” It should be re-evaluated following negotiations, following occurrence of a significant risk event, or after changes occur in project objectives, costs, or schedule. Routine updates (i.e., spot changes) to this document may be accomplished without additional formal review and/or approval. However, major project occurrences such as those identified below will require a re-assessment of risk resulting in a revision to this document. Example situations that would require a revision include, but are not limited to:

- Continuation applications
- Occurrence of a high-risk event
- Major changes to scope, schedule or cost

Additional guidance for documenting the existence of project risk information was issued in November 2007, as described in the update to [“Project Manager Guidance for ProMIS Release of 11-17-07.”](#) This guidance requires the FPM to record certain information at the “Requirements” Tab in ProMIS. This includes a record of the IPT’s determination made for the perceived level of project risk, the need for a Risk Register, and whether a Recipient’s PMP and separate Risk Management Plan exist or are required. Adherence to this guidance is essential to NETL’s efforts to assess progress in improvements in overall project management practices.

5.9 PROJECT EXECUTION RISK MONITORING

The Risk Assessment and Management process aids in documenting project-specific risk issues addressed during negotiations, specifically uncertainties or weaknesses defined during evaluation of applications. Ideally, the financial assistance agreement would satisfy the Government’s program and regulatory requirements, as well as the Recipient’s requirements. The Government has accepted a degree of financial risk and has sought to mitigate certain risks through terms and conditions of the agreement. The Recipient is responsible for implementing the project in accordance with the agreement and must actively manage the risks to scope, cost, and schedule. While the Recipient is accountable for management of the project, the FPM has a responsibility to monitor the continuing status of project risk and the effectiveness of the Recipient’s risk management activities.

The completed Project Risk Register maintained by the FPM provides the basis for what items require monitoring during project execution, and the agreement, including deliverables, specifies the Recipient’s requirements for managing risk. As a general rule, the level of oversight depends on the degree of risk assigned to the project and specific events. As a practical consideration, all risk events are not continually tracked during the

life of the project. Emphasis should be placed on those deemed critical. It is reasonable to expect that no more than 10 or 20 percent of the identified risk events would be considered critical. Events identified as possessing a low degree of risk are subject only to general oversight. Those possessing a moderate degree of risk are subject to periodic monitoring and reporting on the specific area of interest. Those possessing a high degree of risk are subject to continuing review, analysis, and status reporting, which would likely involve designated NETL management officials. An event's probability of occurrence and impact may change as the development process proceeds and information becomes available. Therefore, throughout development and the life of a project, both the FPM and the Recipient should re-evaluate risks and the effectiveness of mitigation strategies on a periodic basis, including assessment of the project for new risks.

The PMP, once submitted by the Recipient and agreed upon by the Government and the Recipient, along with the information in the original award documentation, becomes the baseline description of scope, cost, and schedule against which future reviews and reporting take place. The PMP also includes a section that describes the Recipient's approach to risk management. For complex, high-dollar value projects, the Recipient would typically develop and maintain a separate Risk Management Plan (RMP) with suitable cross references to the overall PMP. The Recipient is expected to execute the project in accordance with the PMP, update the PMP when required, and report quarterly on progress relative to the PMP.

Specific oversight requirements on behalf of the FPM and other IPT members vary significantly depending on the specific nature of the project. The NETL Project Risk Register would delineate the risk events and responses of highest priority to the Government. Note that risk monitoring is integral to and not separate from the overall monitoring and management of the project. The status of risk events are routinely considered by the FPM during oversight performed during project execution, as discussed in [Section 8.4](#) of these guidelines. Requirements established by the program and management officials are likely to dictate needs for monitoring, site visits, and reporting. The requirements of the Monitoring Plan for the EERE State Energy Program grants are an example of a structured approach to assess compliance with financial, administration, and programmatic expectations. Many RD&D programs dictate specific program and individual project reviews to assess progress toward achievement of programmatic goals and objectives. The FPM needs to understand program and management requirements, ensure that the agreement accommodates these requirements, and establish an effective working relationship with the Recipient to facilitate communication of programmatic needs. The FPM plays a key role in ensuring that project objectives and programmatic goals are achieved; thus risk discussions should be an integral part of periodic reporting and review cycles.

The FPM is responsible for documenting and maintaining current, accurate, and complete project information, including the status of risk assessment and management actions. The FPM should maintain working documents electronically, provide appropriate risk-related documentation to the CS for inclusion in official files, and maintain project-specific risk information as attached files in PromIS. Within this framework, tracking and reporting

follow procedures and emphases delineated in the financial assistance agreement. Informal communication with the Recipient typically augments quarterly reporting. Project costs and milestone accomplishments are reviewed against the baseline and the pre-established success criteria. Periodic reviews and reassessments help to maintain assurance that risk elements are being managed in accordance with plan, and new areas of risk are considered during project execution.

5.9.1 RECIPIENT'S PROJECT MANAGEMENT PLAN

The Recipient's PMP is an approved document that defines how the recipient is to execute, monitor, and control the project. It may be of a summary nature or detailed depending on the type of work to be performed. Thus, it is expected that a straightforward low-cost project would have a short plan of 10 pages or less. Complex projects could be 100 pages or more, with subsidiary management plans and other planning documents. An example of minimum requirements for a PMP is provided in [Appendix D](#). A section of the plan includes a discussion of the approach to risk management. For the more complex projects one would expect that the Recipient would develop a separate Risk Management Plan and accompanying Project Risk Register. Projects with significant design and construction activities are prime candidates for a separate Risk Management Plan. The ability of the Recipient to accomplish project objectives is questionable if the Recipient is not able to succinctly articulate how the project will be managed, including consideration of risk. Additional discussion of the Recipient's PMP is provided in [Section 8.1.3](#).

Implicit in the execution of RD&D projects (or any project) through Government financial assistance agreements is that the Recipient is accountable for management of the project and accomplishment of the objectives. The Government relies primarily on the Recipient's established processes, procedures, and systems. Consequently, it is important that the FPM, and IPT members, consider the Government's risk concerns prior to and during negotiations and establish mechanisms for sufficient oversight. NETL's Project Risk Register, the Recipient's PMP and progress reporting against the PMP provide a basis to hold the Recipient accountable.

NETL is held accountable for meeting programmatic goals and objectives, which requires that project-specific goals and objectives are met. In addition, we must demonstrate we are conscientious stewards of taxpayer funds. While FPMs do not manage the Recipient's efforts, they must work cooperatively with Recipients to enhance the probability of meeting project-specific goals, within the context of the program. One key to effective execution of a project is communication. Throughout the project, the FPM and Recipient must maintain a regular dialogue, both formally and informally. The frequency of this communication may be dependent on the complexity, risk content, value, and program significance of the project, but must also ensure the team has the information necessary to effect timely and effective project management. Specific consideration should be given those communication elements (e.g., frequency, type, content) relevant to risk concerns. In some cases, it may be appropriate that the FPM and Recipient develop a separate Communications Plan to accompany the PMP.

The Recipient's approach to risk management should be tailored to meet the needs of the project. Because of the diversity of NETL's financial Recipient organizations, it is inevitable that the level of sophistication and detail of approaches will vary. Most important is that the Recipient identifies a rational approach to assessing and managing risk. This requires that the Recipient recognizes that there are inherent risks to accomplishing the project objectives within the estimated cost and schedule. It is incumbent on the FPM, and IPT members, to convey the Government's expectations. While initial discussions would have occurred during negotiations, the project kick-off meeting should include discussions of risk. As a minimum the Recipient should have an approach to identify, assess, and respond to significant uncertainties associated with the technical scope. For fundamental research and modeling studies it is anticipated that risks would focus on technical uncertainties that are the result of this type of work. For complex, high-dollar-value projects, the Recipient would typically develop and maintain a separate Risk Management Plan with suitable cross references to the overall PMP. Quarterly progress reporting against the plan would suffice for documentation; problems and issues are to be identified as they arise, as well approaches that will be taken to resolve them.

Many organizations have established formal risk management processes that are a part of their corporate culture. This is especially true for agreements with organizations where significant cost sharing is involved. NETL would rely on these established processes and to the extent practical participate in scheduled review meetings. In such cases, the reviews would likely focus on the following illustrative items:

- Activities since previous review.
- Project status with respect to defined risk areas.
- Mitigation actions in progress.
- Emerging new risks, if any.
- Outlook for the future.

5.10 RISK ASPECTS OF PROJECT AMENDMENTS AND CONTINUATION APPLICATIONS

Should conditions require, the FPM may recommend amending an agreement. This need may arise from the impact of risk elements on project objectives, costs, or schedule, either actual or foreseen. Once the need for an amendment has been realized, the FPM must prepare a Procurement Request that includes a revised SOPO, budget, funding account information, and any other relevant supporting material. The Project Risk Assessment must also be revised at this point.

A similar major review point may be triggered on a planned basis. Major RD&D projects typically occur across multiple budget periods, such as when the performance period

spans several years, or when there are logical go/no-go phased decision points, such as design, fabrication, and testing. These projects may have planned Continuation Applications, which require the submission of specific status information for past progress, and detailed estimates of scope, cost, and schedule for the next continuation period. Risk Assessment and Management actions are treated identically as in initial proposals, and a revised Project Risk Assessment must be generated. The approval process for such applications is similar to that required for the original award.

Approval to continue into the next project budget period is typically contingent on (1) availability of funds; (2) satisfactory progress towards meeting the objectives of the approved application; (3) submittal of required reports; and (4) compliance with the terms and conditions of the award. The actual Risk Assessment and Management process as performed by the Recipient, giving consideration to the requirements specified in the PMP (or RMP if it exists as a separate document) is clearly germane to the review and approval of the Continuation Application.

At each unique phased decision point, evaluation criteria are invoked. These criteria are typically based upon project success and ask questions such as the following:

- Have critical technical milestones been met?
- Is the project on time and within budget?
- Is an acceptable level of public benefits still probable?
- Is the project still compatible with overall programmatic goals and objectives?

5.11 PROJECT CLOSEOUT

RD&D project closeout is first directed at achieving and documenting Government acceptance of the final deliverables required by the financial assistance award instrument. From the standpoint of the Risk Assessment and Management process, a key action here is the review and approval of Final Reports and Topical Reports (if applicable) to ensure that they accurately reflect the work that was completed and also provide a complete account of technical results suitable for public release.

Normally, project considerations associated with high risk (as documented in the most recent Project Risk Register) would be highlighted for discussion at some point in the final deliverables. The treatment of risk and the outcome thereof is often an important source of “lessons learned” that merits documentation.

Other closeout actions, in addition to acceptance of technical reports, include financial/audit reconciliations and clearances, property reconciliation and disposal, and intellectual property/patent reconciliation and clearance. Some if not all of these subject areas have potential relevance to the documentation of previously identified risk issues. Some examples are identified directly below:

- Any outstanding patent or intellectual property issues (including their potential impact on business and market risks) should be identified and appropriate actions taken as part of the project closeout process.
- Another area of project closeout activity of possible relevance to the Risk Assessment and Management process concerns the ES&H aspects of facilities and/or materials that were used in the conduct of the work.

In all cases, the risk element is simply to be recognized as an integral element of the primary action area, and included as part of the overall documentation of the subject.

5.12 SUMMARY OF KEY POINTS

Risk is an inevitable and desirable element of technological advancement. It should be treated as an integral project element, not as a separate or added-on feature. The NETL process seeks not to avoid risk, but to manage it. The essential elements of the process are:

- Analyze risks – before you begin, and throughout the life of the activity.
- Act on the analysis – find problems early and correct or mitigate them.
- Document both analysis and actions – look for and make use of lessons learned.

This approach provides increased efficiency and effectiveness in the conduct of projects and the success of programs. It is essential that it be operated in a graded manner, placing greatest effort on the most important activities and objectives. It is a major responsibility of the FPM, but also an important cooperative activity of all levels of management, priority motivated, and priority operated.

6.0 VALUE ENGINEERING AND MANAGEMENT

Value engineering and management—a process for identifying and acquiring items, equipment, technology, and/or systems that provide the required functionality at the “best value”—is decidedly different as applied to RD&D projects in comparison to its application to the acquisition of capital assets. For RD&D, value engineering and management begins in program planning with an alternatives analysis to identify and assess the advanced technology opportunities toward achieving a mission need (program goal to accomplish a public purpose). For example, there may be a national need for increased operating efficiency or for near-zero emissions electric power generating plants. A programmatic alternatives analysis would determine what advanced technologies were most meritorious for development. This would establish the Need Areas of Interest in specific advanced technologies for a competitive FOA or FOAs. The program portfolio of projects would be constantly assessed and adjusted based on scientific and technical knowledge acquired through the conduct of the resultant RD&D projects and the socioeconomic, regulatory and political climate with the intent of achieving the best value to the public.

It is the mission of NETL to implement RD&D programs to resolve the environmental, supply, and reliability constraints of producing and using fossil resources. NETL does this by maturing advanced energy and environmental technologies from fundamental research through to commercial readiness; thus increasing the technological alternatives available to the energy sector for inclusion in its own value engineering/management processes when considering placing online new or modified fossil energy resources.

From a project perspective, especially on major demonstration projects (commercial-scale), a limited value engineering/management concept is necessarily adopted and is the purview of the Recipient. The reason for this is that the project objective is to demonstrate the commercial viability of specific technologies. Therefore, those advanced technologies are not included in a value engineering/management tradeoff within the project. Indeed, the purpose is to demonstrate that the advanced technology is competitive with conventional technologies in the marketplace so that the energy sector can consider it as an alternative in its own value engineering/management processes to achieve an intended function. However, it is expected that the project Recipient will implement value engineering/management for demonstration balance-of-plant functions not dependant on the advanced technology or technologies of primary interest to the project.

Similarly, but to a much lesser extent, value engineering and management may be relevant to AR, prototype and proof-of-concept projects where the technology consists of an assemblage of enabling innovation (the project emphasis) and other commercial or otherwise proven components. It is expected that the project Recipient implement value engineering/management principles with regard to the functions provided by the commercial or otherwise proven components. However, it must be recognized that the very nature of many RD&D projects precludes value engineering/management,

particularly those projects focused on the development of new innovative concepts that provide new functions never before attainable.

7.0 FUNDING OPPORTUNITY ANNOUNCEMENTS

Funding Opportunity Announcements (FOA's) stem from higher-level program requirements as documented in the Annual Procurement Plan. This plan is reviewed periodically and updated as appropriate. FOA's are managed as distinct projects that start with a program requirement (i.e., mission need) typically established by legislation that authorizes the Department to stimulate the private sector through providing federal funding or co-funding to accomplish national energy objectives that are in the public interest. The FOA process concludes with the selection of one or more RD&D project Applications for negotiation leading to award of a financial assistance instrument; that is, a grant or cooperative agreement. Unsuccessful Applicants are notified and, if requested, a debriefing is provided.

The FOA process is itself a risk mitigation strategy carried out through a structured competition seeking Applications from industry and academia (see [Section 5.4](#)). The Applicant's team may also include Federally-Funded Research and Development Centers and other Federal agencies. Applications are evaluated against specific criteria pertinent to program requirements and project management principles. The project management principles and thresholds for DOE management review delineated by Under Secretary of Energy memorandum dated June 23, 2006 (see Appendix A) are applied to ensure the following:

- 1) The integrity of the selection process;
- 2) The selection of a RD&D project Application or a mix of selected project Applications that best achieve specific targets toward program goals; and,
- 3) The process is managed so as to reduce the risks associated with the selection of Applications for negotiation leading to award.

Clear requirements (needs) and instructions for submitting electronic Applications are communicated through the public FOA documents and, if appropriate, a draft public comment period and/or pre-application conference. Applications are evaluated and selected in accordance with the [Evaluation and Selection \(E&S\) Plan](#) established for the FOA.

The requirement for cost-sharing per the Energy Policy Act ([EPAct](#))—usually at least 20 percent (but may be waived under certain conditions) for fundamental or applied research and progressively higher up to a minimum of 50 percent for major commercial-scale demonstrations—is a further risk mitigation strategy requiring Applicants (known as Recipients once financial assistance instruments have been awarded) to share in the risks (not just the potential benefits) through a significant financial commitment. This serves as incentive for the Recipient to implement management control techniques such as cost

and schedule management, Six Sigma and value engineering/management to ensure the Recipient’s stakeholders get the “best value” from the contributed cost-share. From the Government’s perspective, the end result is the most appropriate selection(s) that best achieve targets toward meeting program goals. Program Policy Factors may be applied at the time of selection.

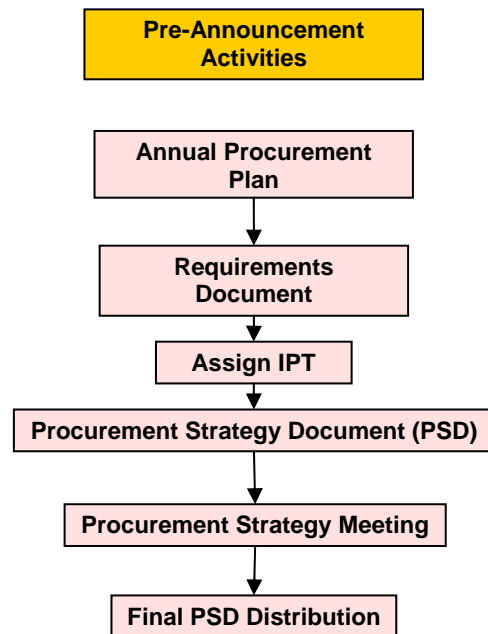
Upon being assigned to a FOA, the Federal Project Manager (FPM) obtains a Procurement Request Authorization (PRA) number—which may also be referred to (inappropriately) as a Contract Identification (CID) number—from the Contracting Officer (CO) or Contract Specialist (CS) and enters and maintains project information in ProMIS.

7.1 FOA PLANNING PROCESS

Once programmatic mission requirements have been promulgated to and accepted by the appropriate implementing project management division, the FOA planning process is initiated by assigning an Integrated Project Team (IPT)—typically a FPM and CS.

7.1.1 REQUIREMENTS DOCUMENT

The [Requirements Document](#) forms the basis for the FOA. It is initiated by the Technology/Program Manager and becomes an agreement with the implementing project management division and AAD Program Coordinator. The Requirements Document provides the institutional justification for the FOA, objective, project description, funding profile, anticipated number of Applications and selections, and identifies the applicability of the Energy Policy Act (EPAct) and other DOE laboratory involvement.



7.1.2 PLANNING PROCUREMENT REQUEST

AAD uses [DOE Form 4200.33, Procurement Request—Authorization](#), as the basis for all requested actions. The FPM should prepare a zero-dollar (or no-fund) planning Procurement Request (PR) in the Procurement Request Authorization Tracking System ([PRATS](#)), using the assigned PRA number and a unique requisition number generated from the [SOS tool](#) for Block 43 of the PR. This is used by AAD to accept the project and assign a CS to the IPT.

7.1.3 PROCUREMENT STRATEGY DOCUMENT AND MEETING

The [Procurement Strategy Document](#) is developed jointly by the FPM and CS in coordination with the Technology/Program Manager. It establishes the plan for implementing the FOA. It builds upon the information contained in the Requirements Document by adding information relative to the following:

- Members of the Procurement Strategy Team;
- Congressional 72-hour notification;
- Anticipated type, number, size and duration of awards;
- Determination/Justification, if applicable, for restricted eligibility, waiver/reduction in cost share, other than full and open competition or non-competitive financial assistance, etc.;
- Qualification criteria for eligibility to apply under the FOA;
- Federally-Funded Research and Development Center participation;
- Government-furnished property;
- Legal and intellectual property issues;
- NEPA requirements;
- Socioeconomic considerations;
- Management and communications sensitivities;
- Other considerations such as continuation or renewal awards, non-standard reporting requirements, substantial involvement (see Section 8.2.4), etc.;
- Risk management considerations (see [Section 5.0](#));
- Proposed evaluation team, evaluation criteria and program policy factors; and,
- Procurement schedule consistent with the [Typical Procurement Actions](#) (TPA) Code and [TPA milestone standard lead times](#) established by DOE Headquarters based on historical experience (but can be compressed, expanded or tailored as appropriate).

The FPM and CS distribute the draft Procurement Strategy Document to the Procurement Strategy Team, at minimum, for review with sufficient lead time prior to scheduling and leading a Procurement Strategy Meeting. This also enables addressing issues with specific Procurement Strategy Team members in advance of the Procurement Strategy Meeting. The purpose of the meeting is to discuss any revisions and approve the final document. A Record of Procurement Strategy Meeting (see attachment to the [Procurement Strategy Document](#) template) is created. This includes an action item log for closure of items that may necessitate revision to the Procurement Strategy Document and appropriate concurrences. A final Procurement Strategy Document that captures approved revisions and resolution of action items resulting from the meeting is distributed to the Procurement Strategy Team and NETL Director. The final Procurement Strategy Document is the plan for implementing the FOA.

7.1.4 EVALUATION AND SELECTION PLAN

The FPM prepares an [Evaluation and Selection \(E&S\) Plan](#), consistent with the [U.S. DOE Merit Review Guide for Financial Assistance](#), and concurred by the Technology/Program Manager, CO/CS, project management division and Selection Official. The purpose of the E&S Plan is to establish the process by which Applications received in response to the FOA will be evaluated and selected. The plan includes the following:

- FOA Summary and Objectives;
- [Conflict-of-Interest/Confidentiality](#);
- Evaluation Guidelines;
- Merit Review Evaluations, including:
 - Appointment of reviewers and ex-officio members;
 - Application review process;
 - Evaluation process (initial and comprehensive merit review);
 - Program policy factors;
 - Selection/Selection Statement;
 - Environmental review;
 - Congressional notification;
 - Notification letters to successful and unsuccessful Applicants;
 - Detailed budget evaluations;
 - Records;
- Personnel; and,
- Responsibilities.

Evaluation Criteria and Rating Plan – An Evaluation Criteria and Rating Plan is developed and included as an attachment to the FOA E&S Plan (see Attachment 3 of the [E&S Plan](#) template for a sample). The IPT—led by the FPM in coordination with the Technology/Program Manager—develops/selects evaluation criteria and weighting factors based on specific program requirements. The time and effort to develop high-quality evaluation criteria is of prime importance to help ensure that: (1) Applicants focus their Applications to address technical and administrative issues, including risks, most relevant to program goals and objectives; and, (2) evaluators have a well-defined basis from which to assess Applications.

While having high-quality evaluation criteria does not in-of-itself assure high-value, meaningful evaluation comments (i.e., strengths and weaknesses), having poor-quality or generic criteria makes it more difficult to assess Applications and derive meaningful evaluation comments.

Merit Review Panel Membership – In general, a merit review panel can consist of both Federal and non-federal reviewers. Some non-federal reviewers require compensation for their services and must be required to submit their need for financial reimbursement not to exceed the amount approved in the plan. NETL is usually responsible for processing payment requests.

Merit Review Panel Chairperson (MRPC) – The MRPC is typically the FPM assigned to the FOA but may be some other individual designated by the Division Director, upon coordination with the Technology/Program Manager and perhaps other senior management. The MRPC is typically responsible for: (1) protecting the integrity of the process; (2) holding an initial briefing with all reviewers to communicate objectives, evaluation criteria and the importance of quality strengths and weaknesses, and adherence to schedule; (3) protecting the confidentiality of all Applicants; (4) delivering all documents that result from the process; and, (5) Chairing and organizing the various meetings throughout the process.

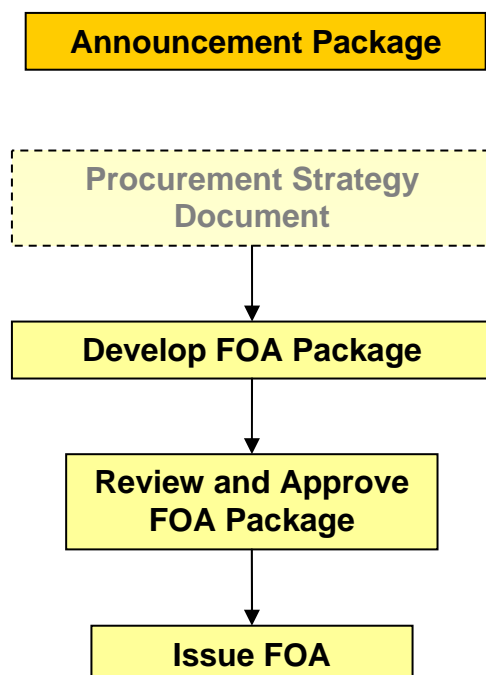
Program Policy Factors – Program Policy Factors are not indicators of the merits of a specific Application. They are nevertheless relevant and essential to the process of selecting Applications that, when taken together, best achieve specific program goals (i.e., reduce program risks). All program policy factors shall be predetermined and specified in the FOA so as to notify potential Applicants of the factors which are essentially beyond their control that will affect the selection process. [Applicants should recognize that some very good Applications may not be selected because they do not fit within a mix of projects which maximizes the probability of achieving overall DOE program objectives.]

7.2 FOA DOCUMENTATION

The FPM and CS work in concert to prepare the public FOA document and coordinate with the project management Division Director, Technology/Program Manager, senior management, General Counsel and the CO. Prior to public release, FOA's are subject to DOE management review per the thresholds and senior management briefing format established by Under Secretary of Energy memorandum dated June 23, 2006 (see [Appendix A](#)). The FOA document contains the following information:

- Summary and Announcement Objectives
– This section typically provides background information on the program, sponsors, goals, targeted potential Applicants, etc. It also provides a brief statement of the objectives.

[Example: “*The primary objective of this FOA is to pursue projects that “bridge” exploratory research and pre-commercial applied R&D of interest to EERE and FE, with ultimate applications that will promote energy efficiency and clean energy. Teaming of academia and industry is encouraged.*”]



- Administrative Requirements
 - Applicant eligibility – Identifies the type of entity eligible to be considered for award under the FOA. Eligibility can be unlimited or can be limited to specific entities (e.g., academia, industry, small business, Federally-Funded Research and Development Centers and local, state and federal agencies).
 - Number and type of awards – Identifies the planned number of Applications to be selected for award and the type of award instrument (e.g., grants or Cooperative Agreements).
 - Cost-share requirements – Identifies the minimum required Applicant cost-share in accordance with legislative requirements. As stated previously, the requirement for Recipient cost-share—usually 20 percent for most R&D and a minimum of 50 percent for major commercial-scale demonstrations—is a risk mitigation strategy requiring Recipients to share in the risks (not just the potential benefits) through a significant financial commitment.
 - Availability of funds – Identifies the total planned or anticipated level of DOE funding available for making awards under the FOA.
 - Project period – Identifies the anticipated range of performance periods the DOE anticipates will be proposed by Applicants to meet program targets.
 - Reporting Requirements – Identifies the formal and informal reporting anticipated under any potential awards resulting from the FOA.
 - Questions and amendments to the FOA – Provides instructions to the Applicants with regard to how to submit clarification questions involving the information contained in the FOA documentation, where to find amendments and how to request a debriefing.
 - FOA Schedule – Identifies the date when Applications are due to the Government and the planned date for selection(s) and award(s).
- Program Areas of Interest – The IPT, led by the FPM and in coordination with Technology/Program Manager(s), provides this section of the document. Program Areas of Interest—also called Need (or Priority Need) Areas of Interest—are of prime importance as they describe the mission or program need(s). The need could be described in terms of a problem to resolve or in terms of targeted performance goals or requirements. The description of the technical/technology need should be as detailed as possible in relation to the technology maturity level being solicited. Each need area can be divided into

sub-need areas and each sub-need area further subdivided into specific technology areas as appropriate. In certain cases, it may also be beneficial to include a description of what is specifically not of interest.

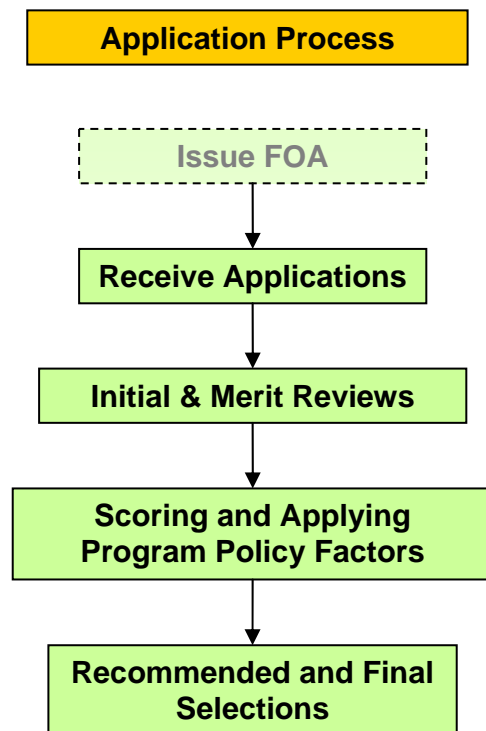
[Example need area for fundamental/applied R&D: “*The Department is seeking fundamental improvements in the development of sensors and controls for cross-cutting applications. Specifically of interest are sensor materials for temperature and gas measurement in processes that operate at high temperatures and extreme conditions. Sensing materials must be able to function appropriately at temperatures at or near 1000°C and potentially up to 2500°C. Novel approaches to functional materials and lightweight, corrosion-resistant composites (stronger than steel but at least half the weight) to advance in-situ sensing capabilities. Sensor materials and platforms capable of detecting one or more of the following are desirable: NO_x, CO, H₂, O₂, CH₄, Hg, Ar, OH, or H⁺. Potential applications include oxygen-enriched combustion systems, coal gasification, natural gas and syngas turbines, and solid oxide fuel cells.*”]

- Application Preparation Instructions – Detailed instructions are provided to establish a standard basis for evaluation and to help ensure that each Application will be uniform as to format, sequence and electronic submission.
- Evaluation and Selection – This section of the FOA documentation contains evaluation and selection information consistent with the [E&S Plan](#) established for the FOA ([Section 7.1.4](#)).

7.3 PUBLIC RELEASE AND ADMINISTRATION OF THE FOA

Once the public FOA documentation has been prepared and approved, the CS posts the material and all subsequent amendments to [grants.gov](#) and to the Industry Interactive Procurement System ([IIPS](#)). [Note that some initiatives, such as the Weatherization Assistance Program, use WinSAGA.] IIPS is a DOE system linked to grants.gov. Grants.gov is the Web portal for Applicants to respond to FOA’s; however, Applicant questions must be posted to IIPS. [This will be affected by STRIPES.]

Prior to formal release of the FOA, the IPT must have a common understanding—coordinated with the Technology/Program Manager, senior management, General Counsel and AAD—as to a communication strategy with entities that might be interested in responding to the potential announcement. Once a FOA has been officially



released to the public, only the CO and CS may communicate with potentially interested Applicants.

7.3.1 RECEIPT AND EVALUATION OF APPLICATIONS

Applications received in response to a competitive FOA are logged by the CS and reviewed against established qualification criteria. The FPM may be asked to provide assistance. Applicants with late submissions or whose Applications fail the initial review (i.e., are determined to be non-responsive) are [notified](#) and the Applications are no longer considered. Applications that pass the initial review are subject to a detailed technical evaluation in accordance with the [E&S Plan](#).

It is important for Merit Review Panel members to realize that the evaluation process is, in essence, a risk identification and mitigation tool designed to identify consensus strengths and weaknesses (see [Best Practice 2007-4](#)). They must be based solely on the information contained in the Application as it relates to the evaluation criteria set forth in the FOA. Each must be clearly and concisely written and provide sufficient information to: (1) assure the veracity of the strengths and weaknesses; (2) arrive at an accurate assessment of the merits of Applications in relation to the evaluation criteria and thus identify the best Applications; (3) serve as points of emphasis in the negotiation of selected Applications, and (4) be of constructive benefit to an unsuccessful Applicant should a debriefing be requested. In assessing the Applications against the evaluation criteria, the merit reviewer should also keep in mind the associated technical, schedule and budgetary risks.

The results of the evaluation process, including recommended selections (and application of program policy factors), are presented in the Merit Review Panel Chairperson (MRPC) Report to the Selection Official.

7.3.2 SELECTION OF APPLICATIONS

The Selection Official can accept the recommended selections presented in the MRPC Report or may choose to apply program policy factors—including application of program policy factors in a different manner than may have been recommended by the MRPC. It is important to note that the only way a lower scored Application can be selected over one that is scored higher is to apply and document a program policy factor. Upon making the selection decision, the Selection Official signs the [Selection Statement](#) prepared jointly by the FPM and CS.

After selections have been made, the FPM should obtain PRA numbers—sometimes erroneously referred to as CID numbers—from the CO or CS for all selected Applications and should provide this to the FPM(s) assigned to negotiate the selected “projects” for award. The FOA FPM should also provide the following information to the FPMs assigned to the selected projects:

- The complete application, including the initial Project Management Plan and risk assessment or approach (note that the material included in an application will vary depending on program and/or FOA requirements);
- The merit review technical evaluation, including responses to any clarifications that may have been requested;
- The selection statement, particularly if it contains negotiation instructions or open issues which become action items;
- The FOA documentation (for programmatic requirements);
- The FOA budget review and comments;
- Any additional programmatic justification that may have been documented; and,
- The procurement strategy document (for further instruction).

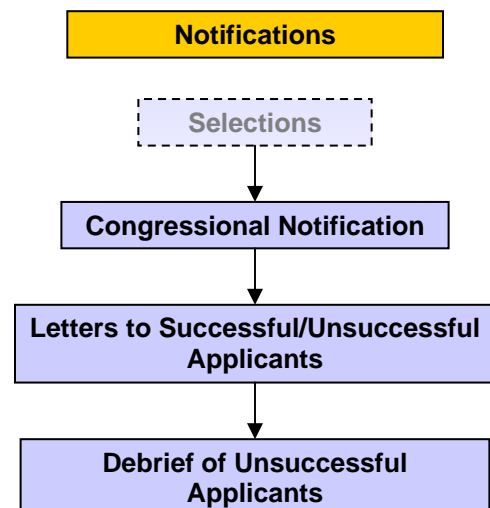
7.3.3 CONGRESSIONAL NOTIFICATION AND NOTIFICATION OF SUCCESSFUL AND UNSUCCESSFUL APPLICANTS

The [Congressional Notification](#) process provides coordinators in the DOE Office of Congressional and Intergovernmental Affairs with the information needed to contact Members of Congress regarding Departmental activities that affect their constituents. Per [DOE Order 1220.1A, Congressional and Intergovernmental Affairs](#), these activities include certain selections, awards, and modifications (including terminations) that require notification before public announcement. The CS, typically with FPM assistance and involvement of the NETL Office of Public Affairs Coordination, is responsible for preparing the [Congressional Notification](#), consisting of a completed [DOE Form 4220.10, Congressional Grant/Contract Notification Form](#), and submitting through the DOE Office of Congressional and Intergovernmental Affairs at least 72-hours prior to public announcement or notifying the Applicant of any new selection or modified award.

Contact with the Awardees shall not occur until after the Congressional Notification process has been completed. The FOA IPT, including Program, Procurement and Public Affairs representatives, should coordinate with the appropriate HQ Congressional Affairs liaison as to when the process has been completed and [letters](#) can be issued notifying successful and [unsuccessful](#) Applicants.

7.3.4 DEBRIEFING OF UNSUCCESSFUL APPLICANTS

The FOA process (and project) concludes with the debriefing of unsuccessful Applicants, if requested. Typically the FOA documentation allows unsuccessful Applicants to request a debriefing; however, the Department may choose to provide a debriefing to all Applicants. Generally, in such a debriefing the consensus strengths and weakness are summarized and communicated to the unsuccessful Applicant as an opportunity to learn how its Application(s) fared against the evaluation criteria so that it can improve future offerings. This is of benefit



to both Applicants and the Department. Thus, it is very important that the debriefing be concise and constructive.

Debriefings can be written or oral. Written debriefings are transmitted by the CS or the FPM on behalf of the CS. Oral debriefings are typically conducted via teleconference but can be conducted face-to-face. The CS should facilitate the oral debriefing—beginning with rules of the proceeding and ensuring that the rules are maintained. The FPM typically communicates the summarized consensus strengths and weaknesses relative to the evaluation criteria. Regardless of the method used to conduct a debriefing, under no circumstances should information be provided that could identify individual merit reviewers. Debate should be avoided as the intent of a debriefing is to provide feedback to an Applicant that could be of benefit in its preparation of Applications to future FOAs, not as a forum for the government to defend or justify its findings. Applicant protests are not permitted.

7.4 NON-COMPETITIVE APPLICATIONS

Non-competitive Applications received by NETL are evaluated in accordance with the [U.S. DOE Merit Review Guide for Financial Assistance](#). Further [guidance](#) is available on the NETL Intranet [AAD Products and Services](#) Web page. A FPM may be asked to review a non-competitive Application, documenting the review on [NETL Form 4200.1, Merit Review Form for Noncompetitive Applications and Unsolicited Proposals](#), and develop a [Determination of Noncompetitive Financial Assistance \(DNFA\)](#), and/or award and manage a project should a decision be made to carry it forward. (RESERVED for future DNFA best practice.)

8.0 PROJECT IMPLEMENTATION

The process of putting in place and implementing extramural RD&D projects is initiated upon one of the following events:

- Notification of [successful Applicants](#) from a competitive FOA¹ ([Section 7.3.3](#));
- Determination of non-competitive financial assistance([DNFA](#)) ([Section 7.4](#)); or,
- Identifying work with Federally-Funded Research and Development Centers ([Section 8.1.8](#)) or other agencies.

After such a project has been identified, the federal IPT membership ([Sections 4.2 & 4.3](#)) should be assigned. Members of the IPT (and in particular the FPM) should establish an effective plan for accomplishing work activities (see [Best Practice 2007-7](#)) and establish and maintain a working document system (see [Best Practice 2007-1](#)). The IPT should receive and become familiar with the following documents:

¹ Does not apply to work with Federally-Funded Research and Development Centers, other agencies or to Congressionally-directed activities.

- The complete Application, including the initial Project Management Plan and risk assessment or approach (note that the material included in an application will vary depending on program and/or FOA requirements);
- The merit review technical evaluation, including responses to any clarifications that may have been requested;
- The selection statement, particularly if it contains negotiation instructions or open issues which become action items;
- The FOA or “lab call” documentation (for programmatic requirements);
- The FOA budget review with comments;
- Any additional programmatic justification that may have been documented; and,
- The procurement strategy document (for further instruction).

The IPT should also consider arranging for a presentation from the FOA team and/or Technology/Program Manager highlighting the salient information to ensure a smooth transition.

The FPM is responsible for ensuring the following is accomplished:

- Preparation of a zero-dollar (or no-fund) Procurement Request (PR) in [PRATS](#) using the appropriate Procurement Request Authorization (PRA) number for the project to be awarded (the FPM may need to verify this number with the CO or CS) and using a unique requisition number generated from the [SOS tool](#) (for entry in Block 43 of the PR)²;
- The new project information is entered into ProMIS; and,
- An assessment of the risk potential of the selected Application (see [Section 5.6](#)).

8.1 PROJECT NEGOTIATION

The intent of negotiation is to develop and define a project that best achieves the mutual goals and objectives of the Government and Recipient. Project negotiation prior to award is the principal opportunity for the comprehensive IPT to accomplish the following activities:

- Arrive at a project that accomplishes the Recipient’s and its stakeholders’ intended purpose;
- Arrive at a project that satisfies the national technical objectives (in whole or in part) as embodied in the Federal program;
- Establish the technical scope, budget and schedule baseline;
- Establish a Statement of Project Objectives (SOPO) that helps best achieve the mutual set of needs of the Recipient and Government;
- Ensure that sound and effective project planning, processes and practices are developed and implemented, including consideration of project risks;
- Establish formal and informal communications and reporting as appropriate;

² Does not apply to work with Federally-Funded Research and Development Centers or other agencies.

- Identify terms and conditions of the award instrument, including special clauses as may be necessary and appropriate based on the complexity of the project, type of award instrument, and/or Recipient experience and capabilities; and,
- Ensure Recipients have adequate management systems, controls and procedures consistent with sound project management principles and Federal requirements.

8.1.1 INITIAL CONTACT (PRE-NEGOTIATION MEETING)

The initial contact with the Recipient (after notification by the CO) is typically made by the IPT (led by the FPM) by telephone or televideo conference. Sometimes, however, it may be advantageous to hold a more formal pre-negotiation meeting under the following circumstances:

- Project technical or administrative complexities merit;
- The prospective Recipient is new to or relatively inexperienced with Financial Assistance; or,
- The Technology/Program Manager finds it meritorious. (An example would be holding a consolidated pre-negotiation meeting or conference with all the prospective Recipients stemming from a Program FOA resulting in many selected Applications.)

The purpose of this introductory meeting—face-to-face or not—is to accomplish the following:

- Introduce the players (i.e., Federal and Recipient team members, Technology/Program Manager and other stakeholders as appropriate);
- Serve as the start of the negotiation process;
- Reiterate overarching government program requirements, including cost-sharing, invoicing, repayment (if applicable), intellectual property, etc.;
- Set the negotiation schedule (i.e., the timeline by which the negotiation is expected to be completed and thus award documentation can go forward through the government review and approval process);
- Present initial issues resulting from the Government review of the application; and,
- Present the Government's assessment of risk potential and communicate the need and approach to develop a risk register (see [Section 5.6](#)).

The FPM is responsible for ensuring that the meeting is documented in minutes or in a memorandum-to-file.

8.1.2 STATEMENT OF PROJECT OBJECTIVES

The [SOP](#), which is drafted by the Applicant and included in its Application, in a DOE Financial Assistance award instrument is analogous to but not necessarily as prescriptive as the Statement of Work (SOW) drafted by the government in a Federal contract. From a project management perspective, the SOP may be the most important single document associated with the execution of an extramural RD&D project as:

- 1) Ideally, it will provide an appropriately detailed yet concise and clearly understandable description of the technical scope and work tasks and subtasks to be performed;
- 2) It forms the basis for and is incorporated within both the Financial Assistance award instrument and the Project Management Plan; and,
- 3) Together with the Project Management Plan, application and budget details, it establishes the basis to conduct a Technical Evaluation of Budget ([TEB](#)).

The SOP should achieve a balance between the need for technical sufficiency, appropriate management oversight and controls, and the flexibility inherent in the Financial Assistance regulations that provide the Recipient discretion to execute the project within scope. The SOP for all award instruments should have a specific task, Project Management and Planning, which requires the Recipient to perform those functions necessary to manage the project in accordance with a Project Management Plan. There may be numerous variations to the task descriptions; thus, it is not appropriate to have standard language. However, three concepts must be included:

- 1) The Recipient is to manage the project in accordance with the approved plan(s) using accepted management systems;
- 2) Tracking and reporting is accomplished relative to the approved plan(s); and,
- 3) The plan(s) is updated when significant changes occur.

The FPM has primary responsibility for negotiating the technical details of the SOP. Typically, an initial draft SOP will be included in the application as required by the FOA. The FPM reviews this for clarity and sufficiency, determines whether the technical scope and tasks require revision (expansion or modification), and ensures that all government requirements are incorporated. As with most aspects of negotiations, this typically becomes an iterative process before agreement on final SOP language is reached.

For relatively straight-forward and uncomplicated research grants, the SOP can be as short as a page or two; in the case of advanced technology development and demonstration projects involving multiple budget periods, the SOP can be quite lengthy and involved.

8.1.3 PROJECT MANAGEMENT PLAN

All projects should have a Project Management Plan or an equivalent plan by some other name (e.g., Research Plan, Project Execution Plan, etc.). This plan is the critical document that integrates how:

- 1) Work is executed to accomplish the project objectives;
- 2) Project risks are considered (see [Section 5.0](#));
- 3) The project baseline is managed;
- 4) Project performance is monitored and controlled; and,
- 5) Project information is communicated within the IPT and to external stakeholders.

At a minimum, a Project Management Plan should address the topic areas identified in the [template](#) contained in [Appendix D](#) of these guidelines. A Project Management Plan could be just a few pages in the case of a university research grant or may be many pages for a major demonstration.

A preliminary Project Management Plan is to be included in the Application. If the project did not result from a FOA, or one wasn't provided as part of the Application, the FPM should request and assess an initial plan as part of the negotiation process.

Since individual RD&D projects are executed within the context of the broader program goals and objectives, it is important to recognize the relationship between the established Project Management Plan and the programmatic need for reliable, periodic reporting against the current plan. The Recipient and the FPM must carefully consider the expectations of the program for project milestones that are measurable and achievable. A milestone is a zero duration event, requiring no resources used to measure the progress of the project. The following guidance delineates the expectations:

- The Recipient is to provide milestones for each budget period of the project.
- Each milestone is to include a title, planned completion date and a description of the method/process/measure used to verify completion.
- Each milestone developed should show progression toward budget period and/or project goals. Each milestone is to be included with the associated schedule indicating the planned completion date relative to task and subtask periods of performance. Cost estimates for task and subtasks are to be aligned with the schedule to provide an estimate of the cost required to achieve a milestone.
- Each project should include not less than two milestones for each 12-month budget period (regardless of the type of award instrument).
- It is required that quarterly milestone reporting address progress made toward achieving milestones from a schedule, cost and technical perspective. A "planned" versus "actual" construct is suggested as consistent with standard project management practices.

The following suggestions are offered as examples of the specific types of milestones Recipients are encouraged to develop and would be considered critical in showing progress:

- Start and/or completion of designs, construction, operations.
- Results of testing and operations.
- Fabrication/synthesis of new materials, prototypes, etc.
- Resolving a problem, and deciding to move in one direction or another.
- Initiation and/or completion of test campaigns.
- Obtaining stakeholder/public approval and support.
- Signing critical subawards/partnerships.
- Securing cost-sharing from third parties.
- Completion of systems and economic analysis/studies.
- Obtaining permits/licenses.

In addition to those elements identified in the template, aspects that should be considered when developing a Project Management Plan include the following:

- Project Management Organization – The IPT membership should be presented by discipline and organizational hierarchy. The relationship between Federal and Recipient membership should be shown. The Federal team membership is led by the FPM. The Recipient Project Manager serves as the FPM's primary point of contact. It is typically the case that the FPM also serves as the Project Officer on the Financial Assistance award instrument and so may also have a direct interface with the Recipient Business Manager. Contact information for each IPT member should also be listed.
- Roles and Responsibilities – Roles and responsibilities should be delineated for members of the IPT and for each entity (e.g., DOE, Recipient and subawards) participating in the project. Complex projects with multiple participants would typically have an organizational work breakdown structure that clearly identifies the entities responsible for the work elements (tasks and subtasks) that comprise the project.
- Key Personnel – Personnel truly essential to a project, such as an inventor, should be identified and a process established to notify DOE prior to removing or replacing such personnel so that the impact to the project can be ascertained.
- Work Breakdown Structure (WBS) – Ideally, project status relative to the technical, budget and schedule baseline should be reported consistent with the WBS. A WBS can be thought of as a pictorial representation of a project. A WBS can be task-oriented, hardware- or function-based, or a hybrid of these concepts. The WBS should go down 3-levels of indenture but could go down 4- or more levels for complex projects having multiple budget periods, as illustrated below. The point of contact that is cognizant of each activity represented on the WBS should also be identified. A WBS Index should be considered that identifies each WBS element,

indenture level, WBS code and crosswalk to associated project task(s) or subtask(s). A WBS element dictionary should also be considered that describes each element in more detail in terms of primary responsible personnel, start and end dates, estimated budget elements (labor, fringe benefits, material, travel, other, overhead, subawards and total), objective/description, and relationship to other WBS elements.

| Single Period Project | | Multiple Period Project | |
|-----------------------|-------------|-------------------------|---------------|
| Indenture | Description | Indenture | Description |
| 0 | Project | 0 | Project |
| 1 | Task | 1 | Budget Period |
| 2 | Subtask | 2 | Task |
| | | 3 | Subtask |

- Communications Plan – This plan should establish the appropriate exchange of project information within the IPT, internal organizational elements and to external stakeholders. Some of the elements that should be considered are as follows:
 - Routine project meetings (in-person, telephone, and televideo conferencing);
 - Design reviews;
 - Peer reviews;
 - Informal communications (such as weekly e-mail updates);
 - A process for review and approval of Recipient press releases (to ensure that the DOE is not inadvertently misrepresented);
 - Dissemination of project documentation (e.g., engineering drawings, modeling results, equipment lists, test plans, etc.); and,
 - Briefings to DOE.
- Performance Monitoring, Control and Improvement – The plan should clearly show how project performance will be monitored and controlled relative to the scope, cost and schedule baseline; how variances will be determined, evaluated and documented; how steps will be taken to mitigate problems; and how this will be reported.

8.1.4 TECHNICAL EVALUATION OF BUDGET

It is the responsibility of the FPM to ensure a TEB is conducted following established [TEB guidance](#) and documented using the [TEB template](#). Source materials include the project Application, SOPO, FOA budget review comments, Project Management Plan (including risk assessment), and additional budget details provided by the Recipient should the plan be incomplete or absent. The process of conducting a TEB may require the use of other NETL experts and consultants (through site support services, see Section 8.5). It may also be iterative as issues and concerns are addressed. Any changes resulting from the TEB process are to be reflected in the Project Management Plan.

8.1.5 OTHER BUDGET-RELATED CONSIDERATIONS

Under certain circumstances, such as when dealing with a new and inexperienced start-up company, the IPT may need to consider, or may be directed by AAD, senior management or Chief Counsel to evaluate a Recipient's financial capability to contribute its cost-share to the project, or that the proposed cost-share is of an allowable nature and meets program thresholds.

For any negotiated award anticipated to be in excess of \$15 million, a comprehensive [cost/price analysis](#) must be performed. This is typically initiated by the AAD Branch Supervisor. For awards between \$500,000 and \$15 million, a comprehensive cost/price analysis or cost/price assistance on specific items of cost (e.g., indirect rates, cost sharing) may be requested by the IPT using the [Request for Cost/Price Assistance](#) form.

8.1.6 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

NEPA is an administrative statute that requires all Federal agencies to consider the effects of Federal actions on the environment. This is done as an integral part of

project planning and decision-making processes through a systematic multidisciplinary approach. It also requires Federal agencies to actively seek and consider public participation for major Federal actions that may have an impact on the environment. NEPA compliance activities, consistent with federal regulations and following [NETL Procedure 451.1-1, NEPA Implementation](#), are conducted concurrent with negotiations.

| Key NEPA Regulations | |
|-----------------------------|-------------------------------------|
| NEPA 1969 (as amended) | 42 USC 4321 et seq. |
| CEQ | 40 CFR 1500 |
| DOE Compliance | 10 CFR 1021 |

The Recipient typically completes an [Environmental Questionnaire](#) (EQ) using [NETL Form 451.1-1/3](#) as part of its project Application. Regardless of the mechanism by which a project may have been identified, it may be necessary for the Recipient to prepare and submit more detailed technology- and site-specific environmental information so that the government can fulfill its obligations under NEPA, especially if an Environmental Assessment (EA) or Environmental Impact Statement (EIS) is required.

Categorical Exclusions – Typically, the requirements of NEPA for fundamental and advanced research can be satisfied using an appropriate [Categorical Exclusion](#) (CX). CX's are categories of Federal actions that have previously been assessed and determined not to have a significant impact on the environment. The FPM is responsible for reviewing the EQ provided by the Recipient and requesting clarification and revision as necessary. The final page of the EQ contains a line for the FPM's signature, along with two checkboxes that indicate the FPM's recommendation with regard to further action in accordance with NEPA. One of the checkboxes indicates the FPM's conclusion that a CX is applicable; the other indicates the FPM's opinion that a CX may not be applicable and further documentation of the environmental impacts of the project may be required. The FPM checks one of the boxes and signs the final page of the EQ.

If a CX is applicable, the FPM is responsible for documenting the decision using [NETL Form 451.1-1/1](#). Both the EQ and CX form is submitted to the NETL NEPA Compliance Officer (NCO) for approval.

Environmental Assessments and Environmental Impact Statements – Based on the EQ, and perhaps the FPM’s recommendation, the NCO may determine that the nature of the project requires an EA or EIS. This is particularly true for major demonstration projects. If this is the case, a NEPA Document Manager is usually assigned as a member of the IPT and is responsible on behalf of the NCO and FPM for managing the NEPA process. Indeed, the NEPA EIS process is typically managed as a project or sub-project, with a beginning and end, and its own scope, cost, schedule and milestone baseline.

An EA can be thought of as intermediate between a CX and an EIS. An EA could result in either a Finding of No Significant Impact (FONSI), or a determination that an EIS is required. The FPM is expected to participate in public scoping meetings, public hearings, discussions with HQ DOE, and inter-tribal consultation meetings pursuant to the National Historical Preservation Act (NHPA), as appropriate. The FPM and other IPT members may assist in the environmental analyses necessary to satisfy NEPA compliance, review and develop the EA or EIS documentation, evaluate mitigation options, and recommend conditions of the Record of Decision (ROD) should an EIS be required.

The EIS process is closely monitored by HQ DOE. The draft and final EIS are subject to HQ DOE review and approval, as is the ROD. Other Federal agencies may participate as cooperating agencies. Also, when a project is located in a State that has an EIS-equivalent process, the State must be invited to be a joint-lead agency on the Federal EIS.

The requirement to do an EIS must be considered when developing the overall project schedule. Prior to completing the EIS and ROD, only those project activities that do not impact the environment or bias the DOE’s decision-making process can be conducted. Generally, this means project activities may be limited to those necessary to collect and analyze the information required to satisfy NEPA. If this is the case, a NEPA clause is included in the award instrument (see Section 8.2.9). The IPT should also recognize that completing the EIS through to the ROD usually takes a minimum of 18-months and may take considerably longer.

The FPM is responsible for ensuring that the final NEPA determination (CX, EA/FONSI, or EIS/ROD) is transmitted from the NCO or designate (i.e., NEPA Document Manager) to the CO/CS for inclusion in the official file.

8.1.7 CONSIDERATIONS FOR MAJOR DEMONSTRATIONS

In addition to the guidance provided elsewhere in this section, a major demonstration project IPT may become involved with activities such as the following:

- Host Site Agreement – The Recipient must show that a binding host site agreement is in place if the host site is not under the direct control of the Recipient. This agreement must commit the site owner to ensure it is available for the project. A copy of the host site agreement should be provided to the FPM.
- Technology License Agreement – The Recipient must show that it is either the technology holder or has a binding agreement with the technology holder giving it the right to use the technology or technologies of interest in the project. A copy of the license agreement should be provided to the FPM.
- Repayment Agreement – If there is a programmatic requirement for repayment of the Federal cost-share, a repayment agreement must be negotiated by the FPM (IPT) and included as an attachment to the award instrument. The repayment agreement becomes a separate binding agreement between the government and the parties responsible for repaying the Federal cost-share. Typically, a repayment agreement could be based on subsequent sales/licensing of the technology demonstrated or the sale of products or by-products. The FPM (IPT) is responsible for assessing the Recipient's ability to repay as part of the negotiation process. This assessment should be conducted in concert with the Technology/Program Manager, legal counsel, and various consultant experts available through site support services (see Section 8.7). As repayment is typically linked to future commercialization of the technology of interest to DOE, an assessment of the Recipient's commercialization plan and the project's Internal Rate of Return (IRR) are important measures in evaluating the repayment plan and the Recipient's ability to repay the Federal cost-share.
- Commercialization Plan – The Recipient must show a commercialization plan that substantiates its ability to satisfy the repayment agreement, provides a marketing strategy, provides a quantitative analysis of the applicability of the technology in the existing and/or new coal-based power generation market, shows how the scale of the demonstration project is consistent with this commercialization strategy, and identifies potential spin-off products. The FPM (IPT) is responsible for assessing this plan relative to the repayment agreement.
- Programmatic Agreement – In order to satisfy the requirements of the National Historic Preservation Act (NHPA), it may be necessary to negotiate a programmatic agreement with interested Federally-recognized Native American tribal nations. NETL typically assigns NHPA compliance responsibility to the NEPA Document Manager and it is addressed within the NEPA EA/EIS processes. In the event this activity becomes substantial, another individual may be dedicated to this role, coordinating with the NEPA Document Manager and FPM as an IPT member.
- Post-Completion Review – This is a project review typically conducted within 2-years after project completion to review the success of the project as well as any problems that may have arisen since project completion as a means to enhance lessons learned.

8.1.8 WORKING WITH FEDERALLY-FUNDED RESEARCH AND DEVELOPMENT CENTERS

NETL may engage Federally-Funded Research and Development Centers (i.e., national laboratories) through one of several mechanisms: competitive “lab calls,” annual HQ tasking actions, independent submissions, or as a member of an award Recipient’s participating team. In all cases, a Federally-Funded Research and Development Center is assigned work using the Field Work Proposal (FWP) or Lab Call processes.

Work with Federally-Funded Research and Development Centers, either stand alone projects in their own right or as elements of an award Recipient’s project, is treated in ProMIS as a project – project information is entered and maintained just as for any other project. Likewise, the FPM is expected to monitor and report the performance similar to any other project.

Lab Calls – A project can originate from a lab call in which R&D work is competitively selected through a process similar to a Funding Opportunity Announcement. However, lab calls are developed and processed by program and project management personnel rather than being processed by NETL AAD. The FPM develops the lab call in concert with the Technology Manager and/or HQ Program Manager. [\[See Sample Lab Call\]](#) Lab call responses are evaluated by NETL and/or outside reviewers identified by the Technology Manager and/or HQ Program Manager. HQ program officials are typically briefed prior to selections. Note that it is recommended that the performer develop a Project Management Plan that is submitted in response to the Lab Call and is evaluated as part of the selection process. However, it is recognized that program offices may require development of a Project Management Plan after selection, while the project is being put in place.

FWP Annual or Individual Awards – For FE related programs, a FWP contains a two-page cover sheet with detailed attachments providing a comprehensive description of a proposed project or discrete elements of a larger project to be performed by a Federally-Funded Research and Development Center and becomes an integral part of the plan to manage the activity. The FWP should therefore contain, as a minimum, the detailed task/subtask information similar to the SOPO (see Section 8.1.2) contained in a Financial Assistance award instrument, as well as the management approach necessary to monitor and control project performance. The FWP is initially developed by the performing center and forwarded as part of an annual submittal directed by the Technology Manager. For multi-year projects, the FWP is developed on an annual basis. Upon request, the FPM should review and comment on a submitted FWP and provide this assessment to the Technology Manager or HQ Program Manager. The review should address the completeness of the documentation relative to the technical work to be conducted, the approach to monitoring and controlling project performance, and relevance to program goals and objectives. Once a final approved FWP has been developed, the FPM should ensure a Project Management Plan is developed by the center for the project.

Recipient Team Member – When a Federally-Funded Research and Development Center is a member of a Financial Assistance award Recipient’s participating team, it is DOE

policy to segregate the work scope to be performed by the center and its share of the funding from the Recipient's award and commit it to the center using the FWP process. The FPM is responsible for implementing the FWP. The FPM (IPT) should also ensure that the project-related activities of the Federally-Funded Research and Development Center are fully integrated into the Recipient's Project Management Plan, and that any significant project risks that may result from the decoupling of the Recipient's award instrument and the center's FWP are addressed in the risk management approach.

8.1.9 NON-COMPETITIVE AWARDS

Once a DNFA has been signed, non-competitive actions are essentially handled as any other project to be implemented with the intent of negotiating a project of benefit to the Federal program. AAD will initiate the process by issuing a letter to begin the fact-finding and negotiation process by requesting the submission of any and all necessary documentation not yet received by the government. This could include a full Application or any missing elements, such as financial assistance forms, certifications/assurances and representations, environmental questionnaire, civil rights compliance, budget justification, SOPO and Project Management Plan.

8.2 NEGOTIATING TERMS AND CONDITIONS OF THE AWARD

Financial Assistance award instruments contain DOE standard terms and conditions and may also contain NETL special terms and condition that are amenable to specific project needs and programmatic requirements. It is the FPM's responsibility to consider the applicability of any special project- or program-specific clauses and coordinate with the CS to ensure the appropriate language is used.

8.2.1 PAYMENT PROCEDURES

The IPT should decide which [method of payment](#) (MoP) is most appropriate to the project and include appropriate instructions. The award template provides prescriptive instructions regarding the most appropriate MoP, depending on the circumstances of the project. This is identified in the FOA document under Part VI, DOE Special Terms and Conditions. The choices are as follows:

- Advances through the Automated Standard Application for Payments (ASAP) system – preferred method for non-profit organizations, State and local governments, and institutions of Higher Education.
- Reimbursement through ASAP – alternate method for non-profit organizations, State and local governments, and institutions of Higher Education; one of two preferred methods for payment to for-profit organizations. Note that this method does not provide for providing supporting cost details; such details are only available under the Automated Clearing House methods below.
- Reimbursement through the Automated Clearing House (ACH) Vendor Inquiry Payment Electronic Reporting System (VIPERS) – preferred method for ACH payments; one of two preferred methods for payment to for-profit organizations.

- Reimbursement through ACH – alternative ACH method of payment when the Recipient cannot access VIPERS.

The IPT should also consider providing instructions for submission of supporting cost documentation, particularly if invoicing is used. For projects that are complex or high risk, the cost information provided to support the invoice should include:

- Summary of invoiced costs for the period (Month/Day/Year to Month/Day/Year), by subtask, indicating the planned cost, current period cost from invoice, and the cumulative cost from invoice;
- Labor expense for the period, by subtask, indicating labor category, hourly rate, hours and cost;
- Travel expense for the period, by subtask, indicating purpose, travel dates, traveler name (labor category), departure location and destination, and associated transportation, lodging, meals, other costs and total costs;
- Equipment expense for the period, by subtask, indicating equipment description, vendor, date received and cost;
- Materials and supplies expense for the period, by subtask, indicating description, vendor, date received and cost; and,
- Summary of rates, including fringe benefits, overhead and G&A, indicating percentages and basis for percentage calculation. [This would be needed for the first invoice; subsequently, it would be needed only when the rates change.]

8.2.2 COST SHARING AND BUDGET PERIODS

A Recipient may request that cost-sharing pursuant to [EPA Act 1992 and 2005](#) be waived under certain conditions. The FPM is responsible for coordinating with the Technology/Program Manager, the CS and perhaps legal counsel, as necessary, on such requests.

If the project period is 12 months or less, the budget period and the project period should be the same. Multi-year awards should generally be funded annually within the approved project period. However, shorter or longer budget periods may be established for compelling programmatic or administrative reasons, such as to allow for project phases not evenly divisible with 12-month increments or to provide program personnel with logical decision points to evaluate whether the project should proceed. For projects having multiple budget periods, a breakdown of the DOE/Recipient cost-share by budget period should be identified.

8.2.3 PRE-AWARD COSTS

If it is likely the negotiation process will be protracted, which is often the case for major demonstration projects, authorization of pre-award costs should be considered. This allows the Recipient to perform certain tasks, at its own risk, while negotiations are on-going. The FPM should carefully consider which specific tasks to authorize, set an appropriate cost ceiling, and coordinate with AAD and the Technology/Program

Manager. The [pre-award costs authorization](#) letter is issued by the CO. In the event that negotiations do not result in an approved project and thus there is no award, all costs incurred as a result of the pre-award costs authorization are borne by the Recipient. However, when negotiations are successful, a pre-award costs clause is included in the award instrument terms and conditions so that the Recipient can receive the Federal cost-share of the pre-award costs incurred.

8.2.4 STATEMENT OF SUBSTANTIAL INVOLVEMENT

The [DOE Guide to Financial Assistance](#) states in Section 2.1.2 (b) that the primary distinguishing feature between a grant and cooperative agreement is that under a cooperative agreement substantial involvement is anticipated between the DOE program office and the Recipient during performance of the funded activity. Thus, if there is no need for DOE participation to rise to the level of substantial involvement, then the appropriate award instrument is a grant. The IPT should carefully consider the appropriate level of DOE participation and develop language for inclusion in the cooperative agreement that specifically describes the project activities which have DOE collaboration, participation or intervention. The following types of activities are generally viewed as substantial involvement; however, involvement should be tailored to the specific circumstances of the project.

Recipient Responsibilities – The Recipient is responsible for:

- Performing the project activities supported by the award in accordance with the Project Management Plan, including providing the required personnel, facilities, equipment, supplies and services.
- Managing and controlling project activities in accordance with its own established processes and procedures to ensure tasks and subtasks are completed within schedule and budget constraints defined by the current Project Management Plan.
- Implementing an approach to identify, analyze, and respond to project risks that is commensurate with the complexity of the project.
- Defining and revising approaches and plans, submitting the plans to DOE for review, and incorporating DOE comments.
- Coordinating related project activities with team members and external stakeholders to ensure effective integration of all work elements.
- Attending periodic program review meetings and reporting project status.
- Submitting technical reports and incorporating DOE comments.
- Presenting the project results at appropriate technical conferences or meetings as directed by the DOE Project Officer (number of conferences/meetings will not exceed [INSERT NUMBER OF CONFERENCES]).

DOE Responsibilities – DOE is responsible for:

- Reviewing in a timely manner project plans, including project management, testing and technology transfer plans, and recommending alternate approaches, if the plans do not address critical programmatic issues.

- Participating in project management planning activities, including risk analysis, to ensure DOE program requirements or limitations are considered in performance of the work elements.
- Conducting periodic program review meetings to ensure adequate progress and that the work accomplishes the program and project objectives. Recommending alternate approaches or shifting work emphasis, if needed.
- Integrating and redirecting the work effort to ensure that project results address critical system and programmatic goals established by DOE {add organization, e.g., FE, EERE, OEA}, in coordination with the DOE {add specific program, e.g., Gasification, Building Technology, SECA} Program. Specific integration includes that required to ensure... {Add specifics as appropriate}.
- Reviewing scientific/technical reports to ensure programmatic needs and the requirements of the Financial Assistance award instrument, including intellectual property rights, are satisfied and providing comments to the Recipient in a timely manner.
- Promoting and facilitating technology transfer activities, including disseminating program results through presentations and publications.
- Serving as scientific/technical liaison between Recipients and other program or industry staff.

Other areas to consider relative to DOE responsibilities include the following:

- DOE participation in major project decision-making processes associated with:
 - Environmental mitigation options considered under NEPA;
 - Preliminary and detailed design;
 - Project financing (e.g., Federal loan guarantee);
- Serving as the liaison between the Recipient and other agencies and organizations necessary to satisfy public law and regulations, such as the National Historic Preservation Act (NHPA);
- Serving as the technical liaison between the Recipient and the Federally Funded Research and Development Centers (FFRDC) through the DOE Field Work Proposal (FWP) System; and,
- Providing coordination with DOE in-house researchers as may be appropriate.

8.2.5 INTELLECTUAL PROPERTY PROVISIONS

The FPM has primary responsibility, with significant representation from the patent attorney/legal counsel, for negotiating intellectual property rights. From a negotiation perspective, the key aspect of intellectual property provisions is to reach agreement on the “rights in data;” specifically, unlimited rights data, protected data, limited rights data, and restricted computer software. The purpose of these provisions is to protect the interests of the project Recipient, subawards and consultants while also assuring the government’s right to make public project information.

Obligations as to protected EAct data that would be treated as proprietary if developed at private expense include the following:

- 1) Must specify period of protection (up to 5-years from production of data);
- 2) Must identify minimum amount of data to be delivered with unlimited rights;
- 3) Must provide legend to be marked on document; and,
- 4) It should be noted that the Government can call for delivery of data at any time but shouldn’t release.

Unlimited Rights Data—Is project or other data over which the government has the right to use, disclose, reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, in any manner and for any purpose whatsoever, and to have or permit others to do so. This is the data necessary to satisfy the government’s need to communicate and disseminate project results to the public and forms the basis for the public topical and final reports of the project.

Protected Data—Is the technical, commercial or financial data first produced in the performance of the award which, if it had been obtained from and first produced by a non-federal party, would be a trade secret or commercial or financial information that is privileged or confidential. This data must be marked as being protected data by the Recipient. Protected data may not be published, disseminated, or disclosed to others outside the government for up to 5-years after completion of the award instrument unless express written consent is obtained from the Recipient. Note that the period of protection can either be established by statute or negotiated up to the 5-year maximum.

Limited Rights Data—Is data developed at private expense that embodies trade secrets or are commercial or financial and confidential or privileged.

Restricted Computer Software—Is software developed at private expense and that is a trade secret; is commercial or financial and confidential or privileged; or is published copyrighted computer software; including modifications of such computer software.

8.2.6 CONTINUATION APPLICATION AND FUNDING

For projects having multiple budget periods, instructions for preparing and submitting Continuation Applications should be included (see [Best Practice 2007-8](#)).

8.2.7 FOREIGN TRAVEL

If foreign travel was evaluated in the TEB and determined to be in the interest of the project, this travel should be listed in the Foreign Travel clause of the award terms and conditions so that DOE can assist in host country clearances or emergency situations.

8.2.8 PROPERTY PROVISIONS

The award should specifically identify any and all real property to be acquired as part of the project and/or government-furnished property to be provided, as discussed in the TEB.

8.2.9 NEPA REQUIREMENTS

Because the EA and EIS processes can take a considerable amount of time, 18-months or longer (see Section 8.1.6), it may be necessary to complete [NETL Form 451.1-1/2, NEPA Authorization for Work Performance](#), and include a NEPA clause under the award instrument (e.g., Cooperative Agreement) terms and conditions that identifies the work that can be accomplished prior to completion of the NEPA process. The work that is identified must not have an adverse effect on the environment or limit the choice of reasonable alternatives. Work that would be allowable to be performed under a NEPA clause includes project definition and preliminary design, since those activities may be necessary to determine to a reasonable degree the types and nature of the potential environmental impacts that might be expected.

8.2.10 NETL SPECIAL TERMS AND CONDITIONS OF AWARD

Under certain circumstances, it may be appropriate to develop truly unique clauses that address specific (and perhaps one-of-a-kind) issues. In the instance, for example, where a major subaward will not be put in place (and perhaps proposals not even received) until sometime downstream in a project, a special clause could be considered that would require budget details be provided to DOE before signing the subaward so that a supplemental TEB and (perhaps) cost/price analysis can be accomplished. Such unique clauses must be vetted by legal counsel prior to award and are not to be used as a means around the application of sound project management principles.

8.2.11 FEDERAL ASSISTANCE REPORTING CHECKLIST

The [Federal Assistance Reporting Checklist](#), [DOE F 4600.2](#), identifies the standard reports available under Financial Assistance. The IPT should clearly understand the purpose and content of available reporting formats and select or “check” only those

which are necessary. It should be noted that there are minimum requirements consisting of quarterly progress, quarterly and final financial status, final scientific/technical and closeout reports. The FPM may consult with the CS to identify these minimum requirements. It should also be noted that certain formal reports have specific audiences and so may be necessary even though they may not be of interest to the collective team.

The FPM must understand that only scientific/technical reporting (i.e., topical reports, conference papers, and the final scientific/technical report) are required to be reviewed and approved by the Project Officer (i.e., almost always the FPM). These are the only reports that go to the Office of Scientific and Technical Information ([OSTI](#)) for public availability. All other reports on the checklist do not require review and approval, although the Project Officer may request a change should any of these reports be inaccurate or inadequate.

Under Financial Assistance rules, formal checklist reporting can be no more frequent than quarterly without obtaining a deviation from DOE Financial Assistance rules from HQ DOE. Such deviations are difficult to acquire. The IPT should therefore establish a strong communications plan that includes frequent communication as part of the Project Management Plan (see Section 8.1.3) to ensure timely dissemination of project information rather than fall back on seeking a deviation to grant permission to have formal reporting more frequent than quarterly.

8.3 AWARDING THE FINANCIAL ASSISTANCE INSTRUMENT

The negotiated award documentation package that results from this process consists of the:

- [Negotiation Memorandum](#) prepared by the CS; and,
- Financial Assistance award instrument (i.e., Grant or Cooperative Agreement), including:
 - Notice of Financial Assistance Award, NETL Form 4600.1#;
 - Attachment 1, Special Terms and Conditions;
 - Attachment 2, Intellectual Property Provisions;
 - Attachment 3, SOPO;
 - Attachment 4, Federal Assistance Reporting Checklist;
 - Attachment 5, Budget pages;
 - NEPA (if applicable);
 - Instructions for completing invoices (as appropriate); and,
 - Repayment Agreement (if applicable).

DOE Management Review—Awards are subject to DOE management review per the thresholds and senior management briefing format established by Under Secretary of Energy memorandum dated June 23, 2006 (see [Appendix A](#)). Documentation subject to review and approval includes at minimum the:

- Negotiation memorandum; and,
- Award document.

Documentation subject to review and approval may also include, as appropriate, the following:

- Project Management Plan, including resource-loaded project schedule;
- Independent government budget estimate;
- TEB;
- Cost/price report;
- Financing Plan and associate government analysis;
- Host Site Agreement;
- Technology License Agreement; and,
- Repayment Agreement and associated government analyses.

The management review may also include an AAD [independent internal/legal review](#). It may be helpful to attach an internal review signoff sheet to the award documents that identifies the personnel (and sequence) necessary for review and approval. Some award documents, either due to the HQ DOE business clearance review [thresholds](#), visibility or by random selection, may be subject to a [HQ DOE business clearance review](#) prior to award.

Upon achieving the appropriate approvals and after a Budget Directive has been issued, the FPM prepares a funding PR to the CS/CO in an amount not to exceed the cost ceiling of the initial budget period (which may be the only budget period). The FPM may consider coordinating with the Technology/Program Manager (i.e., the official with program funding/budget authority) to determine if it is appropriate to obligate partial funding of the initial award to better control project expenditures, in the event the Recipient is inexperienced with government Financial Assistance, or to minimize end of fiscal year uncoded carry-over. However, if the latter approach is taken, the FPM and Technology/Program Manager should be cognizant of the likelihood of operating under a continuing resolution the first few months of the fiscal year and therefore ensure that the Recipient has sufficient carry-over funds to make it through the expected continuing resolution period.

Receipt of a PR by AAD starts the “clock” for the completion of the award action requested. Though time estimates for completion of a PR are not predetermined, AAD uses the PR “clock” as an internal performance metric. Once the PR has been processed, the award instrument is signed and the project officially enters the execution phase.

8.4 PROJECT EXECUTION

With the signing of the award instrument, the Recipient can begin in earnest to accomplish the project in accordance with the award instrument and established Project Management Plan. The FPM must understand that Financial Assistance regulations

provide Recipients the latitude to reallocate project funds—within the scope and overall budget period and total project funding ceilings—across project tasks and budget elements (e.g., labor, travel, equipment, etc.). Regulations may also provide Recipients the opportunity for a one-time unilateral no-cost extension of up to 12-months in the final budget period of a project. Therefore, it is incumbent upon the FPM to impress upon the Recipient the need for timely communication of such within-scope changes and update the Project Management Plan as necessary.

The key to effective execution of a project is communication. Throughout a project, the FPM and IPT must maintain a regular dialogue both within the project (both Federal and Recipient) and to external stakeholders (see [Best Practice 2007-6](#)). The frequency and methods of project communications may be dependent on the complexity, value, and program significance of the project and should be clearly spelled out in the Project Management Plan (see Section 8.1.3).

Soon after the award instrument has been signed, the FPM should complete the following activities:

- Ensure the completeness of information maintained in the working document filing system (see [Best Practice 2007-1](#));
- Ensure the accuracy and adequacy of project information in ProMIS; and,
- Arrange and conduct a project kickoff meeting (see [Best Practice 2007-3](#)).

8.4.1 MONITORING AND CONTROLLING PROJECT PERFORMANCE

The Recipient has full responsibility and accountability for conducting and managing the work elements that constitute the project and for monitoring and controlling those elements within the scope, cost, schedule and milestones (i.e., the baseline) established by the Project Management Plan (see Section 8.1.3 and Section 5.9.1). The Recipient manages the project to assure adherence to performance goals, success criteria, time schedules, spend plans and budget, and risk events as appropriate to the project and terms and conditions of the award instrument. The Recipient is responsible for managing the activities of and pass-through requirements to any subawards. The expectations are that a Project Management Plan would be submitted with the Application, DOE would come to an understanding of how the Recipient plans to manage the project, and DOE would acknowledge that the Recipient has an appropriate project management system in place (through acceptance of the plan). The Recipient is expected to abide by its internal processes and procedures to manage the work to achieve project objectives in accordance with the baseline and provide reports relative to the baseline. An integral aspect of this effort is to update the project management, risk management and other plans as appropriate to accurately reflect the current status and future activities of the project.

The FPM must ensure that the Statement of Substantial Involvement (see Section 8.2.4) included in the FOA and negotiated in the cooperative agreement clearly delineates the expectations for both the Recipient and government.

It is DOE policy to limit involvement between itself and the Recipient in the performance of a project to the minimum necessary to achieve program objectives and ensure conformance with requirements of the award instrument. DOE's role is that of a partner where the Government provides Financial Assistance co-funding, with or without substantial involvement, and the Recipient carries out the project activities. DOE requires Recipients to have adequate management systems to ensure that project objectives are met and funds are properly spent. To the extent possible, Project Officers (usually the FPM) should rely on the management systems of the Recipient to meet project objectives, comply with award terms and conditions, and account for funds. ***Nevertheless, conscientious review and analysis of formal management progress reports (typically submitted quarterly – see Section 8.4.2) and maintenance of other communications channels are critical functions of the FPM (and IPT).*** These communications channels include the following:

- Regularly scheduled project teleconferences/webinars;
- Periodic face-to-face project meetings (alternating between DOE and the project location – i.e., site visits);
- Periodic project reviews; and,
- Documented status reporting relative to the Project Management Plan baseline.

Monitoring and controlling projects includes collecting, measuring and disseminating performance information, and assessing measurements and trends to effect mitigating actions and process improvements. Continuous monitoring gives the IPT insight into the vitality of the project, and identifies any areas that can require special attention. Risk monitoring is integral to and not separate from the overall monitoring and management of the project. The status of risk events are routinely considered by the FPM during oversight performed during project execution ([see Section 5.9](#)). Monitoring and control processes are focused on the following areas:

- Comparing actual project performance (scope, cost, schedule and milestones) against the baseline established in the Project Management Plan;
 - Schedule activities that have been started and those that have been finished;
 - Estimates to complete the schedule activities that have started;
 - Percent physically complete of the in-progress schedule activities;
 - Deliverables that have been completed and those that have not;
 - Costs authorized and incurred;
 - Documented lessons learned;
 - Resource usage;
- Assessing performance variances to determine whether any mitigating preventive or corrective actions are indicated;
- Analyzing, tracking, and monitoring project risks to ensure they are identified, reported, and that appropriate mitigating actions (risk responses) are executed;
- Maintaining accurate and timely information;
- Providing information to support status reporting, progress measurement and forecasting; and,

- Monitoring implementation of approved changes when and as they occur.

Periodic Project Reviews – As previously stated above, periodic project review meetings are an important means of communication between DOE and the Recipient during project execution. It is expected that the Recipient plans project reviews to effectively manage and control project activities. These include routine status meetings that may occur monthly or quarterly, more frequent meetings that the Recipient conducts in accordance with its established management processes and procedures, and specific project reviews that require the participation of DOE, which are necessary for effective oversight, communications, and program management decision-making.

The FPM must ensure that DOE participation in project reviews is planned and communicated to the Recipient; this is a commonly used risk mitigation strategy. All projects are expected to have at least one project review annually, which is typically identified in the SOPO. Complex and highly visible projects that are perceived as medium to high risk are considered candidates for frequent participation by DOE, at least quarterly, in routine project status meetings and in formal project reviews scheduled to resolve performance problems and at major decision points, such as design reviews and budget period continuations. Project reviews for problem resolution and at major decision points must be thoughtfully planned to ensure appropriate attendance by DOE management, procurement, legal, technical consultants and others and documented to ensure effective follow-up to decision-making and action items [Reserved: Best Practice for Project Review Meetings].

Project reviews required by the technology program area, or funding organization, also require prior planning and effective coordination with the Recipient during project execution. While the FPM is not responsible for the conduct of these reviews, the FPM should coordinate the up-front planning with the Recipient and ensure that resulting action items are completed. There are at least two types of reviews: *external peer reviews* and *stage-gate™ reviews*. Both FE and EERE programs have established processes and procedures for conducting external peer reviews that have a primary purpose of assessing overall project progress and performance toward achievement of program goals and objectives. Project-related written information and oral status presentations are evaluated by peers in the scientific area of study using a common set of criteria. Peer review results and recommendations are formally documented and shared with the performer. Outcomes of peer reviews are used by DOE Technology/Program Managers as an R&D portfolio management tool to determine if projects should be continued as planned or be discontinued, or whether project improvements are required to enhance the probability of meeting program goals and objectives. Similarly, formal stage-gate™ reviews are used as an R&D portfolio management tool to decide whether technology concepts should move from one stage of development to the next based on conformance to established gate criteria. Typically, these formal stage-gate™ reviews coincide with decision points at the end of budget periods; project schedules must be planned to accommodate the time required for the decision-making process.

It is important to recognize that program-driven project reviews do not typically involve the CS/CO and resulting decisions are made by the Technology/Program Manager(s) or other officials. The FPM is responsible for communicating the results of project reviews with the CO/CS, as well as the Recipient. This is especially important for external peer reviews, where the Recipient is expected to incorporate recommended improvements to the project and complete certain action items, which may affect the cost, schedule or scope of the project and therefore, the award instrument.

8.4.2 DELIVERABLES

Formal reporting in accordance with the Federal Assistance Requirements Checklist is submitted by the Recipient through NETL Reports Receipt/Document Control, also called the [Federal Information Tracking System \(FITS\)](#). All formal reports received through FITS are forwarded to the FPM and CS. It is the responsibility of the FPM to ensure that reports are further distributed to other members of the IPT as appropriate.

Under Financial Assistance rules, formal checklist reporting can be no more frequent than quarterly without obtaining a deviation from DOE Financial Assistance rules from HQ DOE. Such deviations are rarely approved. Therefore, the communications plan—an integral part of the Project Management Plan—must ensure timely dissemination of project information sufficient to satisfy any “informal” project or programmatic needs for more frequent *reporting*. With respect to satisfying DOE needs for weekly updates, biweekly HQ fact sheets, monthly information in ProMIS, etc., it is incumbent on the FPM to engage in dialogue with the Recipient on a routine basis and develop these work products internally.

Delinquent Checklist Reporting – Timely submission of checklist reports is tracked through FITS. Reports in a delinquent status automatically prompt FITS to generate a notice which is forwarded to the CS to send to the Recipient. Periodic notices are sent the longer reports remain in a delinquent status. Should delinquency of checklist reporting become problematic, the FPM may need to intervene directly with the Recipient Project Manager and/or Business Manager.

Review and Approval of Checklist Reporting – Only scientific/technical reporting (i.e., topical reports, conference papers, and the final scientific/technical report) are required to be reviewed and approved by the Project Officer (i.e., almost always the FPM). These are the only reports that go to [OSTI](#) for public availability. All other reports on the checklist are not intended to be of a “technical” nature and do not require review and approval, although the Project Officer may request a change should any of these reports be inaccurate or inadequate.

The FPM must be cognizant of a quirk in the system. The *final* Scientific/Technical Report is typically due within 90-calendar days after the end of the project period of performance. This truly does mean the *final* version of the report. Therefore, careful attention must be paid to back-fitting an appropriate schedule that provides for submitting an *initial* version of the report, DOE review of the report, and the Recipient incorporating

DOE comments (to the government's satisfaction) prior to submission of the final version of the report. It should be recognized that this initial version of the report is considered to be outside of the formal reporting requirements. Should a final report that is acceptable to DOE not arrive within the 90-days specified, it will be considered delinquent. A suggested time line that should be considered is as follows:

- Initial version of the report submitted within 30-calendar days after the end of the project period of performance.
- FPM reviews the initial version and provides comments to the Recipient within 30-calendar days of receiving the report.
- Recipient has 30-calendar days to satisfactorily incorporate DOE comments into the report.
- Final version of the report submitted within 90-calendar days after the end of the project period of performance.

Also, the FPM should remember that Financial Assistance rules may provide the Recipient a one-time unilateral 12-month no-cost extension to the final budget period of a project to prepare and finalize the final Scientific/Technical Report.

The development, review and approval of Topical Reports, included as part of a Continuation Application submitted near the end of a budget period, should follow a similar initial-to-final review cycle.

Waiving Reports in FITS – It is important that the IPT identify required reports up-front as part of the planning and negotiation processes so as to limit formal reporting to that absolutely necessary. Nevertheless, there may sometimes be a need to waive a reporting requirement in FITS, such as when it is recognized that it is impossible or impractical to obtain past report(s). Another example would be waiving scientific/technical reports due to a significant bottleneck/backlog associated with patent review. The AAD Program Coordinator or Branch Supervisor can approve a request by the FPM through the CS to waive report(s) after the CS documents the following:

- The rationale for waiving the required deliverable (including attempts to obtain the reports); and,
- The Project Officer (usually the FPM) request or concurrence that the report be waived.

When documenting the reason or rationale for a waiver, remember that the solution to a delinquent report is not a waiver—effort should be made to obtain all delinquent reports before pursuing a waiver. It is AAD policy that report waivers will occur only in the most extraordinary circumstances. When possible, the AAD Program Coordinator or Branch Supervisor who waives the required deliverable should be the one who supports the specific program area.

8.4.3 PAYMENT OF AND TRACKING THE FEDERAL COST-SHARE

Recipients are paid the Federal cost-share either through ASAP or ACH (see Section 8.2.1).

| Key Payment Provisions | |
|--------------------------------|--------------------------------|
| Universities/Other Non-Profits | 10 CFR 600.122 |
| State/Local Governments | 10 CFR 600.221 |
| For-Profit Organizations | 10 CFR 600.312 |

Under the ASAP system, the Recipient may drawdown funds in advance or after disbursement in accordance with the terms and conditions of the Financial Assistance award. Prior approval of a drawdown is not required for payment. The Recipient can process a draw request in the system and if funds are available, the payment will be made. These draws are not tracked through the award instrument financial status report. FPM's designated as the program official under the Vendor Invoice Approval System ([VIAS](#)) can track the total amount paid by running the PO Detail Report. Because this report only provides the total amount paid (i.e., drawn), it is suggested that the FPM run this report at least monthly so as to ascertain the monthly drawdown. However, to see individual draws made, the FPM would need to request the NETL Financial Management Division provide an ASAP Account Settlement Report, which provides a history of authorizations and draws. If it is determined that a Recipient is not following the terms and conditions of the award, then its account can be suspended until these issues have been resolved.

Under the ACH reimbursement system, invoices are used. Invoices ([SF-270](#)) must be reviewed and approved by the designated program official in [VIAS](#) (usually the FPM). During the kickoff meeting, the instructions for the Recipient to submit supporting invoice documentation, if any, will have been communicated by the CS. [These instructions are also included in the award instrument.] This supporting detail may be necessary so that the FPM can ensure that project costs are reasonable and appropriate, and the IPT (particularly the CS) can ensure costs are allowable and allocable.

In either the ASAP or ACH reimbursement systems, the FPM and IPT should routinely monitor costs as a means of tracking project progress and measuring compliance with the project baseline in accordance with the Project Management Plan. In addition, for those projects that meet DOE thresholds, the FPM should monitor, track and revise cost accruals (see [Best Practice 2006-1](#)).

8.4.4 PROJECT CHANGES AND AMENDMENTS TO AWARDS

As previously discussed in section 8.4.1, the Recipient has full responsibility and accountability for conducting and managing the work elements that constitute the project and for monitoring and controlling those elements within the scope, cost, schedule and milestones (i.e., the baseline) established by the Project Management Plan. In the normal course of project execution, changes are controlled in accordance with the Recipient's established management processes and procedures. Significant deviations from the current plan that affect the project scope, schedule and cost are recognized through formal amendments to the financial assistance award.

The need for changes to RD&D projects originate from a variety of sources that include: results of peer and other types project reviews, the inherent uncertainty of cutting edge RD&D, government funding limitations, the occurrence of significant risk events, results of current research, recent advancements from complementary research studies, changes in market conditions, changes in company businesses, and changes to program goals and objectives. As a practical consideration, the FPM and IPT must first understand the nature and scope of the change and consult with an AAD Program Coordinator and CO/CS to determine the path forward. In addition, consultation with a broader range of individuals is often necessary: these may include the legal counsel; the Technology/Program Manager; and the division director and other management personnel.

The Project Officer (usually the FPM) has authority to recommend amending an award to the CS and CO. Changes to financial assistance awards are controlled through formal amendments solely under the authority of the CO. As a result significant changes to the project scope, cost and schedule are accomplished through amendments to the award and must be fully documented. Project changes may originate from the Recipient, from the DOE or from both. Some amendments to the award are rather straightforward and require minimal documentation, such as assignment of a new Project Officer, incremental funding, or other administrative revisions. These types of amendments do not substantively affect the planned execution of the project, as defined by the Project Management Plan. Substantive changes to the project objectives, scope, schedule and cost require thorough assessment and complete documentation prior to amending an award or pursuing an alternative pathway toward program goals and objectives. It is always prudent for the FPM to consult with AAD personnel any time a change is required whether the FPM believes it is within, or outside of the scope of the statement of project objectives.

Within-Scope Amendments - Amending an existing award requires that proposed changes to the project are within the scope of the award. The FPM is expected to assist the CO in determining whether a within-scope amendment is appropriate by accurately communicating the proposed revisions in the context of the existing project objectives. Typical project changes accommodated by within-scope amendments involve schedule extensions, budget revisions, and scope changes that may add, modify or remove tasks from the SOPO. Such requests require concurrence and approval by the

Technology/Program Manager. Once the need for an amendment has been realized, the FPM must prepare a PR that describes the nature of the action with any necessary justification and identifies the appropriate funding account information to obligate or de-obligate funds, if applicable. A memorandum from the FPM to the CO is required to justify within-scope amendments. The memorandum would include narrative on the project background, project status, a description of the proposed change, the basis and rationale for the change, implications for cost, schedule and scope, and specific recommendations. As described in Section 7.0, the FPM assists in negotiation of the amended award by reviewing the Recipient's amended application, establishing a common understanding of the SOPO, conducting a TEB, and assessing project risk, if warranted. The Recipient is expected to update their Project Management Plan and other project documentation, as appropriate.

Continuing Projects into the Next Budget Period – For projects consisting of multiple budget periods, the process for continuation into subsequent budget periods is governed by the continuation clause contained in the award instrument terms and conditions (see Section 8.2.6). The review and approval process associated with a Continuation Application is described in [Best Practice 2007-8](#).

Project Changes Outside the Scope - These NETL guidelines (and project management principles, in general) emphasize the importance of upfront planning. Requirements for the total project scope should be considered in the Requirements Document and the Procurement Strategy Document, so that the FOA accurately reflects the program needs. Effective alignment of project requirements with program plans can minimize the need for noncompetitive actions. NETL's goal is to maximize competition in program initiatives. However, there are legitimate reasons for amending or otherwise continuing projects as a logical follow-on to or renewal of an existing award. Changes to projects resulting in work outside the scope of the award are handled in accordance with 10 CFR 600.6, 600.125, 66.315 and the DNFA procedures referenced in [Section 7.4](#).

A significant portion of NETL's program and project activities are applied RD&D programs and projects that have the primary objective of introducing a concept or product into the marketplace, such as those in FE, EERE and OE. The goals and objectives of DOE RD&D programs supported by NETL are often aligned with the business interests of private sector organizations that offer technology products to energy-related markets. As a result many RD&D projects executed through cost-shared cooperative agreements with industry partners have overall objectives aligned with perceived market needs. Project changes resulting from modified program goals and objectives or business interests of industry partners are likely to require amendments that are not within the scope of the award.

Situations may arise where a Recipient's near-term business interests no longer align with the DOE's longer term goals and objectives. In these cases it may be appropriate to mutually terminate an award, but the DOE program may require continuation of an RD&D project for development of a technology critical to the success of the program. Provided there are no intellectual property issues, the preferred path forward is to initiate

a competitive FOA. Alternatively, it may be possible to pursue a non-competitive award, if this approach can be justified in accordance with DNFA regulations. It is expected that the programmatic decision to terminate an award, and continue development of a particular technology shall be documented in the FOA Requirements Document or the programmatic evaluation section of the DNFA. Such programmatic decisions are based on program planning and analysis documentation, which would include market or cost-benefit analysis.

8.4.5 OUTREACH

The FPM is responsible for preparing certain project outreach materials such as TechLines, Fact Sheets, and project presentations. The FPM may also be called upon to present the project to the RD&D community at public seminars, conferences, merit reviews, etc. The FPM is also responsible for maintaining the accuracy and completeness of project information in ProMIS, through which public information is provided for display on the HQ DOE Internet Web site.

8.4.6 FREEDOM OF INFORMATION ACT REQUESTS

Any individual from anywhere, for any reason, can submit a request for documents under the Freedom of Information Act (FOIA). FOIA requests must be given the utmost attention throughout the response process.

If a FPM is in direct receipt of a FOIA request, the procedure is to forward the request to the NETL Freedom of Information (FOI) Officer. Under most circumstances, NETL has a statutorily imposed due date of 20-working days to response to such requests. When the FOI Officer requests responsive documents, these documents are to be provided for review within the time limit requested.

In the course of preparing the FOIA response, the FPM may be asked to review documents and provide comments concerning whether any of the requested material would fall within an exemption to mandatory release. The FOI Officer will provide coordination to explain the FOIA exemptions and the requirements for applying exemption(s) to the requested documents. The Recipient may also be given an opportunity to review and redact the materials.

The FPM should become familiar with the [NETL FOIA procedure](#) and how to handle unclassified controlled information (see [Best Practice 2007-5](#)), as well as review the material posted on the external [NETL FOIA Web site](#).

8.4.7 COMPLIANCE WITH AWARD TERMS AND CONDITIONS

The Project Officer (usually the FPM) is responsible for monitoring performance under Financial Assistance award instruments and for notifying the CS/CO when a Recipient fails to comply with award terms and conditions. Thus, FPMs must have a working understanding of the key provisions of 10 CFR 600.

Noncompliance—A Recipient is said to be in noncompliance if it has not complied with the following:

- Applicable requirements of 10 CFR 600;
- Requirements of any applicable program statute or rule; or,
- Any other term or condition of the award.

Key General Provisions

| | |
|------------------------|-------------------------------|
| Noncompliance | 10 CFR 600.24 |
| Disputes/Appeals | 10 CFR 600.22 |
| Debarment/Suspension | 10 CFR 600.23 |
| Suspension/Termination | 10 CFR 600.25 |

In the event a Recipient becomes noncompliant, the FPM must coordinate with the CS/CO to send (by certified mail, return receipt requested) a written notice signed by the CO. This notice sets forth the following:

- Factual and legal bases for the determination of noncompliance;
- Corrective actions and the date (not less than 30 days after the date of the notice) by which they must be taken; and,
- Actions (or remedies) DOE may take should the Recipient continue to be noncompliant after the time specified in the notice, or does not provide satisfactory assurances that actions have been initiated which will achieve compliance in a timely manner.

These potential actions/remedies include the following:

- Temporarily withholding cash payment or more severe enforcement action;
- Disallowing both funding or recognition of credit for all or part of the cost for the activity or action not in compliance;
- Whole or partial suspension or termination of the current award for the Recipient or sub-recipient; and,
- Withholding further awards or other available remedies.

Suspension/Termination—DOE may suspend or terminate an award for cause on the basis of noncompliance or a suspension or debarment of the Recipient. In the event DOE determines to terminate an award for cause, but before doing so, the FPM must coordinate with the CS/CO to send (by certified mail, return receipt requested) a separate written notice signed by the CO, in addition to that required for noncompliance, at least ten days prior to the effective date of the suspension or termination. This notice sets forth the following:

Key Enforcement Provisions

| | |
|-------------|-----------------------------------|
| Enforcement | 10 CFR 600.162(a) |
| | 10 CFR 600.243(a) |
| | 10 CFR 600.352(a) |

- Factual and legal bases for the suspension or termination;
- Effective date or dates of the DOE action;
- Description of the activities affected by the action, if the action does not apply to the entire award;
- Instructions concerning allowable costs during the period of suspension, or allowable termination costs, including in either case, any sub-recipients;

- Instructions concerning required final reports and other closeout actions for terminated awards; and,
- Recipient's right to appeal a termination for cause.

Unless DOE and the Recipient agree otherwise, no period of suspension shall exceed 90 days. DOE may cancel the suspension at any time, up to and including the date of expiration of the period of suspension, if the Recipient takes satisfactory corrective action before the

expiration date of the suspension or gives DOE satisfactory evidence that such corrective action will be taken. If the suspension has not been cancelled by the expiration date of the period of suspension, the Recipient shall resume the suspended activities or project unless, prior to the expiration date, DOE notifies the Recipient in writing that the period of suspension shall be extended or that the award shall be terminated. As of the effective date of the suspension, DOE shall withhold further payments and shall allow new obligations incurred by the Recipient during the period of suspension only if such costs were authorized in the notice of suspension or in a subsequent letter. If the suspension is cancelled or expires and the award is not terminated, DOE shall reimburse the Recipient for any authorized allowable costs incurred during the suspension and, if necessary, may amend the award to extend the period of performance.

Key After Award Provisions

| | |
|--------------|--|
| After Award | |
| Requirements | 10 CFR 600.170-173 |
| Closeout | 10 CFR 600.250-252 10 CFR 600.360-363 |

Termination by Mutual Agreement—Alternatively, the DOE or Recipient may initiate the termination of an award (or portion thereof) by mutual agreement. Recipients requesting such a termination must notify the CO in writing and specify the following:

- Reasons for the termination;
- Proposed effective date of the termination;
- Description of the activities to be terminated, in the case of a partial termination; and,
- Appropriate budget revision.

DOE may terminate an award or portion thereof by mutual agreement only if both parties agree to the termination and the conditions under which it shall occur. Nevertheless, if DOE determines that the remaining activities under a partially terminated award would not accomplish the purpose for which the award was originally made, the DOE may terminate the entire award. The FPM and other IPT members have a responsibility to work with the CO and Technology/Program Manager to ensure that the decision to terminate and subsequent actions taken by the DOE are fully documented in the AAD files. It is especially pertinent to document decisions made to amend financial assistance awards ([see Section 8.4.4](#)) and to pursue alternative pathways toward program goals and objectives. If an entire award is terminated, as a result of decisions by the Recipient, the DOE may decide to continue the RD&D project through a subsequent competitive FOA or on a non-competitive basis if justified by a DNFA.

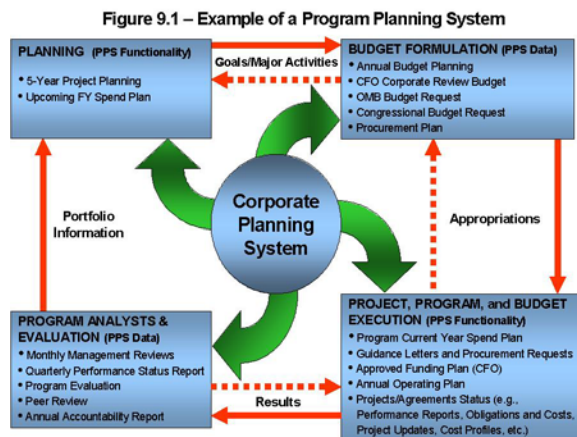
8.5 SITE SUPPORT SERVICES

In addition to being the FPM on a RD&D project, an FPM may be assigned as a Task Monitor on a Site Support Services contract. This would require the FPM also be designated a Contracting Officer's Representative (COR). The FPM may be asked to put a site support task or subtask in place following [established procedures](#).

Site support services, particularly those under the [Technology and Management Support](#) contract, are available to the RD&D project IPT as a resource to help support the IPT satisfy its project management due diligence. In considering use of site support services, the IPT should develop an estimate of the cost and coordinate with the Technology/Program Manager to determine if funds are available to support the effort.

9.0 REPORTING OF RESULTS

Project results are an integral part of a program planning system, as can be seen in Figure 9.1. They provide the link between project execution and program analysis and evaluation. The results are used in program analyses and evaluations, which can be used to make changes to or redirect programs and projects. Therefore, the documentation of project results is critical for the overall success of a planning system.



NETL has project management responsibilities for the range of technology development subprograms delineated in Section 3.0 of these guidelines, which results in differences in reporting expectations among NETL project management divisions. While differences may exist on what specific project results should be documented, there are common project results which need to be documented for each technology development subprogram. The overall history of the project is one such item. It should list the original goal and scope of the project, what changes were made to the goal and scope over the life of the project and whether or not they were met at the conclusion of the project. The documentation should also include a summary description as to the success of the project, i.e., was the research initiative successful, what was really learned, were all tasks completed, and should the research continue along this line or should a new direction be

taken. Documented project results provide the history of a completed project and provide the basis for current and future program decisions.

9.1 PROGRAM ANALYSIS AND EVALUATION

As illustrated in Figure 9.1, project results are used in program analysis and evaluation. The results also feed back into several documents previously discussed in Section 3.1. At NETL, Technology/Program Managers use the results in their program planning to accomplish the following activities:

- Create multi-year program plans;
- Update their program portfolio analysis;
- Make programmatic decisions;
- Develop program and project off-ramps;
- Develop Acquisition Strategy for future projects;
- Create Annual Procurement Plans; and,
- Create out-year spending plans.

Internal to NETL, project results are often communicated through division staff meetings, technology team meetings, and the NETL Weekly Report. Most importantly, project results must be made available to those outside of the immediate project. Results may help other researchers with projects they are working on, as well as adding in technology acceptance. Documented project results provide a historical record which can be used by other FPMs when managing future projects as the results can help to reduce risks in future projects as they provide lessons learned. For that reason, NETL offers the following means for the storing, retrieving and transferring of project results:

- Posting reports to OSTI;
- Posting reports and results on the NETL Website;
- Posting reports in ProMIS;
- Presenting project results at conferences, meetings or workshops; and,
- Publishing project results in technical journals.

It is important for the FPM to realize that posting reports to OSTI and to the NETL Website requires patent clearance from DOE's Office of Intellectual Property Counsel in

Chicago. This could also pose a problem when posting reports in ProMIS. Therefore, when posting a report in ProMIS, the FPM should note whether the report is available for public release. Finally, it should be noted that until project closeout is completed, all project reports are also available in FITS.

Project results can also be utilized by other parts of the NETL organization. Results should be sent to the systems analysis group for review. The results could be used to perform a benefits analysis and determine future direction for RD&D. Lessons learned should be documented for future use as guidance to plan new projects. Project results could be used for administrative, financial and closeout of the agreement. The project results should be archived along with all other project information. Archived project information should contain lessons learned, reports, decision making documentation (e-mails, memos, letters, etc.) and any other project information developed over the life cycle of the project. The FMP should conscientiously maintain working documents ([See Best Practice 2007-1](#)) over the life of the project to meet the information needs of various parts of the NETL organization.

9.2 PROGRAM PERFORMANCE METRICS

Performance Metrics have become an integral part of government programs. They are used for determining the effectiveness and value of current government programs. They are a scorecard as to how programs are performing, used as a tool in determining program funding levels, and as a method of tracking project and program performance. At NETL, there are several levels of metrics. They range from OMB's Program Assessment Rating Tool (PART) program performance to the Government Performance Results Act (GPRA) metrics as Department and program level performance goals. The responsibility for completing projects and feeding the program performance results ranges from the individual FPM all the way to the Secretary of Energy. The FPM must be aware of how assigned projects relate to the program's performance metrics. The FPM is the first in the programs' organization with responsibility for tracking and determining performance. Ultimately, the individual project performance is analyzed in conjunction with other related project performance elements to determine if the Program is progressing in meeting PART and GPRA long term goals. The following represent metrics which FPMs need to be cognizant as they may have responsibility or may be required to provide input:

- 1) PART/GPRA—Department level (Budget, Multi-year plans, Annual reporting;
- 2) Multi-Year Program Plans, GPRA Quarterly milestones, Annual Operating Plans:
- 3) Institutional Performance Levels—NETL level (NETL's own goals for performance e.g. completing all procurement actions planned, operational safety, completing work proposals, etc.) ;
- 4) Organizational Components—Division and office level (ProMIS, NETL Weekly Report, complete budget obligation actions); and,

5) Work Goals—Individual level.

It is important for the FPM to understand the reasons for developing metrics. First of all, metrics are developed for tracking progress. Therefore, the metric must be measurable, quickly verifiable and meaningful. Metrics should also be quantified, indicative of trends, and cost-effective to track.

10.0 PROJECT CLOSEOUT

Given that NETL extramural RD&D projects are not intended to result in capital assets for DOE use, the notions of operational organization's readiness for assuming operational responsibility and the Government's acceptance of the asset are not directly pertinent prior to project closeout. Extramural RD&D project closeout can best be characterized as the Government's acceptance of the final deliverables required by the financial assistance award instrument (or contract) and performing those functions needed to closeout or terminate the award. Section 9.0, Reporting of Results, contained discussions of project closeout activities such as ensuring results are integrated with program planning activities and developing lessons learned that can be applied to the management of future projects. This section focuses on closeout activities specific to the financial assistance award instrument where the FPM has a supporting role.

FPMs should be familiar with the [closeout requirements and documentation](#) posted on the NETL [Procurement Desktop](#), specifically those contained in the [Guide to Financial Assistance](#) issued in March 2005 by the DOE Office of Procurement and Assistance Policy, Office of Procurement and Assistance Management.

DOE will closeout an award when it determines that all applicable administrative actions and all required work of the financial assistance award have been completed. An awarding office should have a consistent format and basic procedures for award closeout. Closeout of awards should occur within a reasonable period of time after the completion date of the award or date of termination. This should normally be accomplished within nine months.

Closeout requirements applicable to financial assistance Recipients are contained in [§ 600.171-173](#) for universities, hospitals and non-profits; [§ 600.250-252](#) for governmental entities; and [§ 600.361-363](#) for for-profit organizations. Within 90 days after the expiration or termination of a financial assistance award, the Recipient must submit all financial, performance and other reports required as a condition of the award. These reports may include, but are not limited to:

- 1) Final performance or progress report;
- 2) Financial Status Report (SF-269);
- 3) Final Request for Payment (SF-270), if applicable;

- 4) Patent certification, if applicable; and,
- 5) A listing of property furnished by DOE or acquired under the award.

The official financial assistance award file should be reviewed for completeness to assure that it contains sufficient information on which to base the decision to closeout the award. Closeout activities include financial/audit reconciliations and clearances, acceptance of required reports including submission of technical reports to [OSTI](#), as applicable, property reconciliation and disposal, and intellectual property/patent reconciliation and clearance.

The FPM does not lead this process but must work cooperatively to support AAD personnel and finance to complete closeout; those involved may include the CO, CS, Closeout CS, and Property Management Specialist. Typical activities requiring FPM or IPT support are:

- Assisting the CO (and associated representatives) in determining the status of technical terms and conditions of the award. A specific requirement is to review and approve Final Reports (or Topical Reports) to ensure that they accurately reflect the work that was completed and provide a complete account of technical results suitable for public release.
- Assisting the CO (and associated representatives) in determining if there are outstanding patent or IP issues that have not been resolved at the time of closeout.
- Assisting the CO (and associated representatives) in reconciling final costs associated with the financial assistance award. In some cases the FPM may be required to submit procurement requests to de-obligate existing funds if the funds will not be used or obligate additional funds. In either case, the FPM needs to coordinate with the responsible Technology Manager and Division Director to ensure funds are returned to the proper account or are made available for obligation.
- Assessment of appropriate disposition of Government property either furnished by the Government or purchased by the organization conducting the work.
- In some instances there may be issues concerning the ES&H aspects of facilities or materials that were used in the conduct of work. The FPM should be prepared to provide technical analysis of the issues and recommended resolutions to facility disposition.
- Generate a COR Acceptance Report³ (no longer required for projects where a final report is delivered through FITS).

³ K:\COMMON\AADATA\AFORMS\CLOSEOUT FORMS\COR's Acceptance Report.doc


Appendix A – Project Management Principles for Financial Assistance



The Under Secretary of Energy
Washington, DC 20585

June 23, 2006

MEMORANDUM FOR DISTRIBUTION

FROM: DAVID K. GARMAN 

SUBJECT: Project Management Expectations for Financial Assistance Activities

The research and development activities conducted through financial assistance awards; specifically grants, cooperative agreements, and Technology Investment Agreements are important elements of our portfolio. In fiscal year 2005 alone, the Department of Energy (DOE) funded \$1.7 billion of new financial assistance awards, with a total value of \$2.6 billion, when private sector cost share is added.

Given the size and importance of these investments, we commissioned a team of individuals from our respective offices and the Office of Management to develop a framework for the application of the principles of project management to financial assistance awards. The major elements of that framework are presented in Attachment 1, and are consistent with DOE Order 413.3, *Program and Project Management for the Acquisition of Capital Assets*.

I expect that managing our financial assistance practices to this framework will allow us to do the following:

- Demonstrate that our financial assistance award and administration practices are based upon sound project management principles;
- Segregate projects by risk and provide management input to these projects at the appropriate organizational level; and,
- Improve management of those financial assistance projects that, by virtue of their unique attributes, require affirmative review by DOE Executive Management to ensure the achievement of the project's goals.

To implement the framework, each Program Secretarial Office (PSO) is required to assess its financial assistance award and administration practices against the Project Management Principles described in Attachment 1 and report those practices to me by August 18, 2006. I anticipate that current management practices will generally conform with these principles. However, in the event that a PSO cannot demonstrate that its practices are consistent with these principles, the PSO will document to this office what actions it is taking to fulfill this requirement. In addition, all fiscal year 2006 and 2007 Funding Opportunity

Announcements that result in initial awards in 2007, and all other initial 2007 awards will be coordinated with DOE senior management in accordance with the thresholds outlined in Attachment 1.

Secretary Bodman has repeatedly challenged DOE management to improve DOE's management systems and capabilities to better serve DOE's mission needs. I believe that adopting these principles will help ensure sound project management and management awareness in this key portion of our research and development portfolio.

Attachment

DISTRIBUTION:

James A. Rispoli, Assistant Secretary for Environmental Management

Alexander A. Karsner, Assistant Secretary for Energy Efficiency and Renewable Energy

Jeffrey D. Jarrett, Assistant Secretary for Fossil Energy

Dennis R. Spurgeon, Director, Office of Nuclear Energy, Science and Technology

Edward F. Sproat, III, Director, Office of Civilian Radioactive Waste Management

Kevin M. Kolevar, Director, Office of Electricity Delivery and Energy Reliability

Michael W. Owen, Director, Office of Legacy Management

cc: Ingrid Kolb, MA-1
 Robert McMullan, MA-50
 Edward Simpson, MA-60
 John Alleva, SC
 Jeff Baker, Golden Field Office
 Ron Cutright, NETL/OECM
 Joe Giove, Fossil Energy
 Walter Howes, MA-50
 Jacqueline Kniskern – MA-60
 Dennis Miotla, NE
 Chris Ott, NE/ID
 Tom Robinson, EE
 Joe Waddell, NNSA
 Chuck Zeh, NETL
 Argonne National Laboratory
 Brookhaven National Laboratory
 Carlsbad Field Office
 Golden Field Office
 Ohio Field Office
 Idaho National Engineering and Environmental Laboratory
 Lawrence Berkeley National Laboratory
 Lawrence Livermore National Laboratory

Los Alamos National Laboratory
National Energy Technology Laboratory
National Renewable Energy Laboratory
Oak Ridge National Laboratory
Office of River Protection
Pacific Northwest National Laboratory
Portsmouth Paducah Project Office
Richland Operations Office
Rocky Flats
Sandia National Laboratories
Savannah River Operations Office
Yucca Mountain Site Operations Office

Attachment 1

Project Management Framework for Financial Assistance Awards in the Office of the Under Secretary

The following framework is to be used by Program Secretarial Officers (PSOs) to plan and administer all initial financial assistance awards beginning in fiscal year 2007.

Project Management Principles

Project management principles, which are consistent with DOE O 413.3, are as follows:

- Mission need must be defined and approved by the appropriate management official;
- A range of alternatives to meet the mission need must be considered, developed, and evaluated;
- Project objectives must be defined up front and be used to judge project success;
- Project performance risks (technical, financial, and otherwise) must be identified and mitigated in an implementation strategy;
- Projects must be managed by qualified individuals;
- Scope, schedule, and budget must be established for each project and serve as the basis for project management; and,
- Projects must be managed and reported against the established scope, schedule, and budget.

These project management principles apply to all financial assistance awards (grants, cooperative agreements, and Technology Investment Agreements), regardless of their size or complexity.

Thresholds for Managing Financial Assistance Projects

Financial assistance projects will be segregated by the following financial thresholds. These thresholds determine the organizational level at which projects will be managed and reviewed. The following thresholds represent the DOE share only and are meant as general review levels. Funding Opportunity Announcements and Awards that have high visibility, high risk or other unique attributes may be subject to senior management review without regard to these thresholds.

| Financial Assistance Thresholds for DOE Management Review (DOE Share) | | | | |
|---|---------------|--------------------|---------------------|------------------|
| | Field | PSO | Under Secretary | Deputy Secretary |
| Funding Opportunity Announcements (aggregate value of expected awards) | | <\$100 million | \$100-\$400 million | >\$400 million |
| Individual Awards | <\$50 million | \$50-\$100 million | \$100-\$400 million | >\$400 million |

- Financial Assistance Individual Awards Less than \$50 Million**
 Responsibility for the management of these awards rests with the field organization or as otherwise assigned by the PSO. No review is required above the level of the Field Element Manager. The field organization is responsible for all project reporting and administration.
- Financial Assistance Solicitations Less than \$100M or Individual Awards Between \$50 Million and \$100 Million**
 Responsibility for the management of these actions and awards rests with the field organization, or as otherwise assigned by the PSO. The PSO must be notified no later than 30 days prior to issuance of the announcement or award. Subsequent to PSO review, the field organization is responsible for all project administration and reporting to the PSO.
- Financial Assistance Solicitations Between \$100 Million and \$400 Million or Individual Awards Between \$100 Million and \$400 Million**
 Responsibility for the management of these actions and awards rests with the field organization, or as otherwise assigned by the PSO and Under Secretary. The PSO is required to notify the Under Secretary no later than 30 days prior to issuance/award, and if requested, coordinate a Senior Management review of the Funding Opportunity Announcement/financial assistance award. Templates for senior management notification and for these reviews are attached. Subsequent to Under Secretary review, the field organization is responsible for all project administration and reporting to the Under Secretary and PSO.
- Financial Assistance Solicitations Greater than \$400 Million or Individual Awards Greater than \$400 Million**
 Responsibility for the management of these actions and awards rests with the field organization, or as otherwise assigned by the PSO, Under Secretary, or Deputy

Secretary. The PSO is required to notify the Under Secretary, who notifies the Deputy Secretary, no later than 30 days prior to issuance/award, and if requested, coordinate a Senior Management review of the Funding Opportunity Announcement/financial assistance award. Templates for senior management notification and for these reviews are attached. Subsequent to the Deputy Secretary's review, the field organization is responsible for all project administration and reporting to the Deputy Secretary, Under Secretary, and PSO.

Finally, the PSO is required to notify the Under Secretary of any intent to discontinue a previously awarded financial assistance instrument with a DOE share of greater than ten million dollars.

SENIOR MANAGEMENT BRIEFING
FUNDING OPPORTUNITY ANNOUNCEMENT/FINANCIAL ASSISTANCE AWARD

PURPOSE:

The senior management briefing is held to ensure that U.S. Department of Energy (DOE) management is fully informed and offered an opportunity to review and comment on all funding opportunity announcements (FOAs) and financial assistance awards greater than \$100 million (DOE funds), prior to signature. No later than 30 days prior to the release of an FOA or signature of a financial assistance award greater than \$100 million, senior management will be offered a briefing.

SENIOR MANAGEMENT BRIEFING PARTICIPANTS:

Senior management briefings are chaired by the program office responsible for finalizing the financial assistance award. The following participants, or their designee, must be invited:

Deputy Secretary (FOA >\$400 million [DOE share])
Under Secretary (FOA >\$100 million ≤ \$400 million [DOE share])
Program Secretarial Officer
General Counsel
Procurement
Budget
Congressional and Intergovernmental Affairs

BRIEFING OBJECTIVE:

The briefing must address the following:

- How the proposed project meets the mission needs of the program and the Department;
- How the proposed project is the best alternative for achieving the program objectives;
- How the project will be managed, i.e., responsible individuals, resources required, scope, schedule, decision points, etc.;
- Management and communication sensitivities (Administration, Congressional, State and local, industry, stakeholders, etc.); and
- Specific authorizing legislation or statutory requirements.

BRIEFING CONTENT:

The briefing should include the following information:

I. Statement of Mission Need and Alternatives Assessment (required for FOAs only)

II. Linkage to Strategic Management Multi-Year Plans and Budget Requests

III. General Information

- Sponsoring Program Office
- Funding Opportunity Announcement from which the project was selected
- Award recipient and the basis for the selection

IV. Management Structure and Processes

- Description of the prime recipient and all major sub-recipients
- Description of the recipient's management processes including any special tailoring of standard processes for this project
- Project review methods and schedule
- Reporting and documentation
- Key Personnel (recipient and DOE), e.g., project, procurement, financial, legal, property, etc.

V. Detailed Project Description

- Project Scope--statement of project objectives and work breakdown structure
- Project Schedule--including major milestones and decision points
- Funding
 - Total projected Federal funding and participant cost share
 - Cost plan and funding requirements (Federal and participant) by year
- Property--if project includes construction of a capital asset, describe the recipients project management procedures as they relate to DOE Order 413.3

VI. Pre-Award Considerations

- Legal issues
- Intellectual property
- Protected EPACT information
- Advanced patent waiver request
- NEPA approach/requirements
- National Laboratory and federally funded research and development centers' participation
- EPACT cost share requirements
- Congressional notification
- Other

VII. Management and Communication Sensitivities

**BRIEFING REQUEST FOR MAJOR FINANCIAL ASSISTANCE ACTIONS
(FUNDING OPPORTUNITY ANNOUNCEMENT/AWARD)**

PURPOSE: The Under Secretary must be notified no later than 30 days prior to release of all Funding Opportunity Announcements (FOAs) greater than \$100 million (U.S. Department of Energy [DOE] share) or signature of Financial Assistance (FA) awards greater than \$100 million DOE share). The Under Secretary will be provided the opportunity to receive a briefing and review all major FOAs prior to their release or FA awards prior to their signature.

The Deputy Secretary will be provided the opportunity to review all FOA and awards greater than \$400 million.

TYPE OF ACTION:

- ☐ Funding Opportunity Announcement Release
☐ Major Financial Assistance Award (grant or cooperative agreement, or technology investment agreement)

BACKGROUND INFORMATION:

ESE PROGRAM: ☐ EE ☐ EM ☐ FE ☐ LM
 ☐ NE ☐ OE ☐ RW

ISSUING/AWARDING

HQ or FIELD OFFICE: _____

Title and Description of Work Scope: _____

Sensitivities:

Estimated Dollar Value (including options):

DOE: \$
Cost Share: \$
Total: \$

ESTIMATED DATE FOR FOA RELEASE: _____

☐ N/A

ESTIMATED DATE FOR AWARD: _____

☐ N/A

SUBMITTED BY: _____

UNDER SECRETARY ACTION:

- ☐ Briefing Required
☐ No Briefing Required

Initials/Date: _____

Initials/Date: _____

Appendix B – Project Management Life Cycle

Figure B-1 depicts the general project management life cycle. It relates capital asset acquisition projects and RD&D projects with respect to [DOE Order 413.3](#) and PMI. For RD&D projects, NETL progresses through a tailored decision process similar to the [DOE Order 413.3](#) Critical Decision (CD) process. The Mission Need flows from Federal statute. The determination (similar to CD-0) to proceed with a FOA is based on program and budget planning that carries out the Administration's initiatives and Congressional direction. This advanced planning, which includes strategy development, multi-year plans, operating requirements, procurement planning and financial commitments, is the purview of HQ DOE Program Managers, and where applicable, field office Technology Managers. With this determination, an IPT typically consisting of the FPM and Contract Specialist (CS) is assigned to develop a FOA and the procurement strategy and need areas of interest are developed.

The determination to proceed with selection of applications is based on the FOA procedures that implement the DOE merit review process. A FPM and IPT are assigned to each application selected for award.

The determination (similar to CD-1) to proceed with RD&D project award is based on an appropriately negotiated financial assistance instrument. This sets the project baseline. While total project costs are estimated at the time of award, there is necessarily much inherent uncertainty that the concept or research approach will be successful. RD&D projects tend to evolve as more definitive knowledge is obtained through testing and analysis; thus, periodic re-baselining is necessary through formal modification to financial assistance instruments. Cost, schedule and technical status are reviewed at discrete points to determine if the project should continue, be terminated or revised to better meet objectives.

NETL manages RD&D projects in phases with discrete budget periods at key decision points. Depending on the nature of the project, these decisions typically coincide with significant expenditures such as major equipment purchases, completion of feasibility tests, assessment of scale-up studies, start of construction (similar to CD-3) or start of operational demonstration (similar to CD-4). A detailed Continuation Application is required for approval prior to entering each new budget period.

All NETL RD&D projects go through a closeout phase, which may take several years.

Figure 1.2 The Project Management Life Cycle

| Project Management Institute (PMI) | | FEASIBILITY | ACQUISITION PLANNING & BUDGETING | | DESIGN | | CONSTRUCTION | STARTUP & OPERATIONS | CLOSEOUT |
|--|-------------------------|--|--|--|--|--|---|--|--|
| | | Project Formulation; Feasibility Studies; Strategy Design & Approval | Cost and Schedule; Terms & Conditions; Detailed Planning | | Preliminary & Detailed Design | | Manufacturing; Delivery; Civil Works; Installation; Testing | Final Operational Testing; Operations and Maintenance | |
| PROJECT TYPE | | Initiation | Definition | | Execution | | Transition/Closeout | | |
| Capital Assets & Other Mandated Projects | DOE O 413.3 | PRECONCEPTUAL PLANNING | CONCEPTUAL DESIGN | | PRELIMINARY DESIGN | FINAL DESIGN | CONSTRUCTION | TRANSITION-TO-OPERATIONS & CLOSEOUT | |
| | Critical Decision Point | 0 | 1 | | 2 | 3 | 4 | | |
| | Funds Requirements | Operating/Program | Operating/Program | | PED | PED | Project | | |
| Deliverable: Physical Asset for which Federal Government Holds Title to Property | | Mission Need Statement (MNS) - justification and independent review; Safety/Risk Analysis; NEPA Strategy; Value Study - Mission Validation Independent Project Review (IPR) | Acquisition Strategy (AS); Integrated Project Team (IPT) Charter; Conceptual Design Report (CDR); Preliminary Hazard Analysis (PHA); Preliminary Project Execution Plan (PEP); Preliminary Baseline Range: Project Data Sheet (PDS) for design; NEPA; permitting requirements; preliminary sustainable environmental stewardship provisions; Quality Assurance Plan (QAP). Applies a systems engineering methodology integrating requirements/ functional analysis, alternatives analysis, risk analysis and value management/ engineering to evolve a cost-effective solution to meet the mission need. | | Performance Baseline (PB) - Key Performance Parameters (KPPs), Total Project Cost (TPC), Schedule, & Scope; Baseline External Independent Review (EIR) or IPR; Preliminary Design & Reviews; Value Engineering; updated PEP; Hazard Analysis (HA), PDS & QAP; Performance Management System (PMS) - Earned Value Management System (EVMS); Capital Asset Plan (Exhibit 300); Independent Cost Estimate; initiate Startup/Transition-to-Operation Plan; finalize NEPA; draft sustainable environmental stewardship provisions | Updated PEP, PB, HA, PDS, Exhibit 300 & QAP; Executability EIR/IPR; completed Final design and procurement packages; Worker Health & Safety Plan; final sustainable environmental stewardship provisions | Checkout, Testing & Commissioning; Final Transition-to-Operations Plan; Final HA/Safety Analysis Report (SAR); Operations & Maintenance (O&M) procedures; Readiness Assessment (RA)/ Operational Readiness Review (ORR); updated Worker Health & Safety Plan; environmental permits; revise sustainable environmental stewardship provisions; updated QAP | Demobilization; migrate to production for software; complete operational documentation & as-builts; administrative and financial closeout; Lessons Learned Report; Final Project Closeout Report | |
| Assistance Major Demonstration Projects | Continuation Point | PLANNING | SOLICITATION | NEGOTIATION | DEFINITION | DESIGN | CONSTRUCTION | OPERATIONAL DEMONSTRATION | CLOSEOUT |
| | Funds Requirements | 0 | 1a | 1b | 2 | 3 | 4 | | |
| Deliverable: Federal Government - Scientific/ Engineering Knowledge; Recipient - Commercial-Scale Asset of Public Benefit | | Program Direction Mission Need (by Federal Statute); Strategic Plan; Technology Roadmap; Multi-Year Program Plan; Annual Operating Plan (AOP); Annual Procurement Plan; Requirements Document | Program Direction Procurement Strategy Document (PSD); Application Evaluation & Selection Plan; Solicitation Documents - Need Areas of Interest, Evaluation Criteria & Application Instructions | Program Direction Licensing & Host Site; Management Plans - Project, Risk, Funding & Commercialization; Terms/Conditions (e.g., IP); Cost/ Price & Schedule; Budget Periods; Statement of Project Objectives (SOPO); NEPA; Deliverables | Program Conceptual Design; Site Evaluation; Permitting; finalize NEPA Environmental Assessment (EA) or Environmental Impact Statement (EIS); BP2 Continuation Application - Topical Report, Updated SOPO, Cost/Price & Schedule, Funding/Financing Plan | Program Preliminary & Detailed Engineering Design & Reviews; Permitting; BP3 Continuation Application - Topical Report, Updated SOPO, Cost/Price & Schedule, Funding/Financing Plan | Program Plant Construction/ Equipment Installation; Start-up & Acceptance Plans; Demonstration Test Plan; BP4 Continuation Application - Topical Report, Updated SOPO, Cost/Price & Schedule, Funding/Financing Plan | Program Operational Testing & Demonstration; Final Project Report | Program/Program Dir. Assistance Closeout; Post-Project Assessment; Lessons Learned/Feedback to Program Portfolio Management |
| Assistance R&D Projects | Continuation Point | PLANNING | SOLICITATION | NEGOTIATION | CONCEPTUAL | DESIGN | FABRICATION | VERIFICATION TESTING | CLOSEOUT |
| | Funds Requirements | 0 | 1a | 1b | 2 | 3 | 4 | | |
| Deliverable: Federal Government - Scientific/ Engineering Knowledge; Recipient - Intellectual Property (IP) such as Studies or Laboratory, Bench-Scale, Prototype, or Pre-Commercial Hardware or | | Mission Need (by Federal Statute); Strategic Plan; Technology Roadmap; Multi-Year Program Plan; Annual Operating Plan (AOP); Annual Procurement Plan; Requirements Document | Procurement Strategy Document (PSD); Application Evaluation & Selection Plan; Solicitation Documents - Need Areas of Interest, Evaluation Criteria & Application Instructions | Project & Risk Management Plans; Terms & Conditions (e.g., IP); Cost & Schedule; SOPO; Budget Periods; Deliverables; NEPA - Categorical Exclusion (CX), EA or EIS | Feasibility Studies; Concept Development; finalize NEPA (if EA or EIS); BP2 Continuation Application - Topical Report, updated SOPO, Costs, Schedule, & Funding Plan | Proof of Concept or Engineering Prototype Design & Reviews; BP3 Continuation Application - Topical Report, updated SOPO, Costs, Schedule, & Funding Plan | Technological Device or Prototype Fabrication & Assembly; Testing Plan; BP4 Continuation Application - Topical Report, updated SOPO, Costs, Schedule, & Funding Plan | Proof of Concept Verification; Prototype Demonstration Testing; Final Project Report | Assistance Closeout; Lessons Learned/Feedback to Program Portfolio Management |

ASSESSMENT OF PROJECT RISK POTENTIAL

| | | | |
|---|--|---|-------|
| IDENTIFICATION NUMBER (CID): | | REVISION NUMBER (e.g.; Original, 1, 2, etc.): | |
| RECIPIENT: | | | |
| PROJECT TITLE: | | | |
| INTEGRATED PROJECT TEAM (IPT): | | | |
| <ul style="list-style-type: none"> The IPT may vary for each project. Therefore, this list is not to be considered exclusive or all inclusive, and must be modified to reflect the appropriate project assignments. In many cases, for small dollar value and straight-forward projects, the IPT would consist of the FPM and the CS. For a limited number of projects, such as those funded through the SBIR Program, the CS is not an NETL employee. In these cases, the FPM should obtain input from the CS, as practicable, but may proceed without CS input if concurred to by management. If the IPT consists of more members than those listed, please attach the respective names and signatures separately. | _____ | _____ | _____ |
| | Federal Project Manager | Signature | Date |
| | _____ | _____ | _____ |
| | Contracting Officer or Contract Specialist | Signature | Date |
| | _____ | _____ | _____ |
| | Legal Counsel or Other (Specify) | Signature | Date |
| _____ | _____ | _____ | |
| NEPA Document Manager or Other (Specify) | Signature | Date | |
| _____ | _____ | _____ | |
| Project Engineer or Other (Specify) | Signature | Date | |
| _____ | _____ | _____ | |
| Division Director or Other (Specify) | Signature | Date | |
| RESULT OF ASSESSMENT | | | |
| <input type="checkbox"/> Risk Register NOT Required <input type="checkbox"/> Risk Register Required | | By above signature, I/We certify that this Risk Assessment has been made with knowledge of the Program strategic and annual operating plan, the Procurement Strategy Document, technical merit evaluation strengths and weaknesses, pertinent Selection Statement and Merit Review Committee recommendations, the proposed Statement of Project Objectives (SOPO) and Project Management Plan (PMP), the Technical Evaluation of Budget (TEB), and all available historical information (e.g.; past performance prior R&D, etc.). | |
| ATTACHMENT(S): | (1) (2) | | |
| <ul style="list-style-type: none"> List and attach continuation pages and/or any supporting documentation. | | | |
| BRIEF PROJECT DESCRIPTION | | | |
| Not intended to restate the SOPO, but rather characterize the nature of the project. While the technical objective can be restated, it is important to state whether it is a simple or complex project over multiple years with few or numerous participants, etc. | | | |
| | | | |

ASSESSMENT OF PROJECT RISK POTENTIAL

| INSTRUCTIONS FOR COMPLETING THE PROJECT RISK ASSESSMENT | |
|---|--|
| 1. | Although the Federal Project Manager (FPM) has primary responsibility for completing these evaluations, <i>the entire Integrated Project Team (IPT) shall participate in the initial and any subsequent changes to the project's assessment.</i> |
| 2. | The IPT may vary for each project. Therefore, the list provided on Page 1 of this Assessment is not to be considered exclusive or all inclusive, and must be modified to reflect the appropriate project assignments. |
| 3. | <i>Each project must first be evaluated using the Assessment of Project Risk Potential form to calculate the overall project risk potential. This will determine the level of Risk Assessment and Management to which the project is to be evaluated, monitored and reported.</i> |
| 4. | The Assessment of Project Risk Potential adjectival descriptions are provided as general guidance, and should be interpreted as appropriate to suit the project being evaluated. |
| 5. | <i>When completing the Assessment of Project Risk Potential, it is prudent to make use of the rationale/comments section. Providing comments for each category helps the division director and others to clearly understand the basis for the resulting score and provides more complete documentation.</i> |
| 6. | <i>If an Assessment of Project Risk Potential score is chosen which differs from the adjectival description, a justification is required.</i> |
| 7. | At the discretion of the FPM or other member(s) of the IPT and with appropriate justification, the project may be subjected to more or less Risk Assessment and Management processing than required by the Assessment of Project Risk Potential score. |
| 8. | <i>If, following the Assessment of Project Risk Potential, the project requires further review, a Project Risk Register must be completed.</i> |
| 9. | Routine updates to this document may be accomplished without formal review and/or approval. However, <i>major project occurrences such as those identified herein will require a re-assessment of risk resulting in a revision to this document.</i> Example situations that would require a revision include, but are not limited to: <ul style="list-style-type: none"> • Continuation Applications • Occurrence of a High Risk Event • Major changes to Scope, Schedule or Cost |
| 10. | <i>Upon completion of this and any subsequent assessments, ProMIS (Requirements tab) must be updated and a copy of this document stored (Files tab) in Adobe Acrobat (.pdf) format. In addition, it is recommended that a copy of this and subsequent assessments be maintained by the CS/CO for inclusion in the official award file.</i> |

ASSESSMENT OF PROJECT RISK POTENTIAL

Scoring rationale must be provided for each of the categories. If an item is scored outside the corresponding description, justification must be included.

| ITEM SCORES FOR CORRESPONDING RATING | | 1 | 5 | 10 | 25 | 50 | SCORE |
|--------------------------------------|---|--|---|---|---|--|-------|
| FINANCIAL | Total Project Financial Obligation (\$K) | < 750 | 750 - 2,500 | 2,500 – 5,000 | 5,000 – 15,000 | > 15,000 | |
| | Business Type | Large Corporation | Mid-size R&D Organization or State Government | University/Small Business w/Significant Government Experience | Business w/Little or No Government Experience | N/A | |
| | Stability Of Organization (Financial & Business Savvy) | Excellent – Clear Financial & Business Commitment | N/A | Acceptable – Appropriate Commitments, With Uncertainty | N/A | Poor – Uncertain Cost-Sharing, Commitment | |
| COST / SCHEDULE | Clarity And Acceptability Of Budget & Resource Allocation | Annual Budget Established by Program/Legislation | Excellent Budget Documentation Confirmed by Cost Analyst | Acceptable Budget Documentation, With Uncertain Out Year Budgets | Acceptable Budget Documentation, Uncertain Allocations, Quantities, Sources | Significant Budget And Resource Challenges & Uncertainties | |
| | Certainty & Acceptability Of Schedule | 1 to 3 Year Level Of Effort Activities, e.g. University Research Grant | Multi-Year Effort, w/ Well-Understood Task Durations & No External Influences | Multi-Year Effort, w/ Uncertain Task Durations & No External Influences | Multi-Year Effort, w/ Some Uncertain Task Durations & Significant External Influences | Significant Scheduling Challenges & Uncertainties | |
| TECHNICAL / SCOPE | Experience And Qualifications Of Personnel & Organization | Excellent Credentials & Past Performance | N/A | Acceptable | N/A | Significant Past Performance Issues | |
| | Complexity Of Technical Approach And Scope | Lab- or Bench-Scale Research, Paper Studies | Well Defined, Straight-Forward R&D or Project Activities | R&D With Uncertain Screening & Feasibility Testing | Pilot/Proto-Type Design, Modifications, & Tests | First-Of-A Kind Designs, Significant Construction & Multiple Tests | |
| MANAGEMENT, PLANNING & OVERSIGHT | Complexity Of Project Organization And Coordination | Single Organization w/Clear Responsibilities | Multiple Organizations w/Clear Responsibilities | Single Organization w/Uncertain Responsibilities | Multiple Organizations w/Uncertain Responsibilities | Significant Organizational Challenges & Uncertainties | |

ASSESSMENT OF PROJECT RISK POTENTIAL

Scoring rationale must be provided for each of the categories. If an item is scored outside the corresponding description, justification must be included.

| ITEM SCORES FOR CORRESPONDING RATING | | 1 | 5 | 10 | 25 | 50 | SCORE |
|--------------------------------------|--------------------------------------|--|---|---|----------------------------------|--|-------|
| ES&H | ES&H Considerations | Clear CX | Probable CX | N/A | EA required | EIS required | |
| EXTERNAL FACTORS | Programmatic Importance & Visibility | Minimal – Experimental Knowledge Product | Clearly Identified Regulatory Requirements, e.g. State Grants | One of Multiple Approaches to Program Goals; Recognized Path Of Development | Significant HQ Involvement | Major Demonstration, Single Project Supporting Program Goals | |
| | External Stakeholder Visibility | Minimal or No Visibility | Straight Forward Programmatic Communication Efforts | Significant External/Public Coordination Required | Congressionally Directed Project | N/A | |
| TOTAL PROJECT RISK POTENTIAL SCORE | | | | | | | |

| RISK POTENTIAL SCALE | |
|----------------------|---|
| < 80 | No further risk assessment required, if concurred upon by the Division Director. Ensure Project Management Plan is adequate, review reports, monitor activities and follow established monitoring requirements, e.g. State Energy Program monitoring plan. |
| 80 – 300 | Discuss need for subsequent evaluation with Division Director and appropriate management personnel, and document decision. If the Division Director concurs, no further assessment may be required. If warranted, the IPT shall conduct risk assessment in conjunction with the recipient and maintain updated documentation, various levels of management oversight required as appropriate; may require separate Risk Management Plan with Project Management Plan. |
| > 300 | The IPT shall conduct risk assessment in conjunction with the recipient and maintain updated documentation, heightened level of management oversight required; suggest outside assistance if necessary; may require separate Risk Management Plan with Project Management Plan. |

ASSESSMENT OF PROJECT RISK POTENTIAL

Scoring rationale must be provided for each of the categories. If an item is scored outside the corresponding description, justification must be included.

| RATIONALE/COMMENTS FOR RISK POTENTIAL SCORE | |
|---|--|
| Financial | |
| Cost / Schedule | |
| Technical / Scope | |
| Management, Planning & Oversight | |

ASSESSMENT OF PROJECT RISK POTENTIAL

Scoring rationale must be provided for each of the categories. If an item is scored outside the corresponding description, justification must be included.

| RATIONALE/COMMENTS FOR RISK POTENTIAL SCORE | |
|---|--|
| ES&H | |
| External Factors | |

PROJECT RISK REGISTER

| | | | |
|---|--|--|-------|
| IDENTIFICATION NUMBER (CID): | | REVISION NUMBER (e.g.; Original, 1, 2, etc.): | |
| RECIPIENT: | | | |
| PROJECT TITLE: | | | |
| INTEGRATED PROJECT TEAM (IPT): | | | |
| <ul style="list-style-type: none"> The IPT may vary for each project. Therefore, this list is not to be considered exclusive or all inclusive, and must be modified to reflect the appropriate project assignments. In many cases, for small dollar value and straight-forward projects, the IPT would consist of the FPM and the CS. For a limited number of projects, such as those funded through the SBIR Program, the CS is not an NETL employee. In these cases, the FPM should obtain input from the CS, as practicable, but may proceed without CS input if concurred to by management. If the IPT consists of more members than those listed, please attach the respective names and signatures separately. | _____ | _____ | _____ |
| | Federal Project Manager | Signature | Date |
| | _____ | _____ | _____ |
| | Contracting Officer or Contract Specialist | Signature | Date |
| | _____ | _____ | _____ |
| | Legal Counsel or Other (Specify) | Signature | Date |
| | _____ | _____ | _____ |
| NEPA Document Manager or Other (Specify) | Signature | Date | |
| _____ | _____ | _____ | |
| Project Engineer or Other (Specify) | Signature | Date | |
| _____ | _____ | _____ | |
| Division Director or Other (Specify) | Signature | Date | |
| By above signature, I/We certify that this Risk Register has been made with knowledge of the Program strategic and annual operating plan, the Procurement Strategy Document, technical merit evaluation strengths and weaknesses, pertinent Selection Statement and Merit Review Committee recommendations, the proposed Statement of Project Objectives (SOPO) and Project Management Plan (PMP), the Technical Evaluation of Budget (TEB), and all available historical information (e.g.; past performance prior R&D, etc.). | | | |
| ATTACHMENT(S): | (3) | | |
| <ul style="list-style-type: none"> List and attach continuation pages and/or any supporting documentation. | (4) | | |
| | | | |
| BRIEF PROJECT DESCRIPTION | | | |
| Not intended to restate the SOPO, but rather characterize the nature of the project. While the technical objective can be restated, it is important to state whether it is a simple or complex project over multiple years with few or numerous participants, etc. | | | |
| | | | |

PROJECT RISK REGISTER

| INSTRUCTIONS FOR COMPLETING THE PROJECT RISK REGISTER | |
|---|--|
| 1. | Although the Federal Project Manager (FPM) has primary responsibility for completing these evaluations, <i>the entire Integrated Project Team (IPT) shall participate in the initial and any subsequent changes to the project's assessment.</i> |
| 2. | The IPT may vary for each project. Therefore, the list provided on Page 1 of this Assessment is not to be considered exclusive or all inclusive, and must be modified to reflect the appropriate project assignments. |
| 3. | Each project must first be evaluated using the Assessment of Project Risk Potential to calculate the overall project risk potential. This will determine the level of Risk Assessment and Management to which the project is to be evaluated, monitored and reported. |
| 4. | At the discretion of the FPM or other member(s) of the IPT and with appropriate justification, the project may be subjected to more or less Risk Assessment and Management processing than required by the Assessment of Project Risk Potential score. |
| 5. | If, following the Assessment of Project Risk Potential, the project requires further review, it shall be evaluated at each Risk Category to establish a baseline Risk Assessment and Management Plan. |
| 6. | Risk events (i.e.; situations, results, etc.) should be identified for each of the six risk categories. However, it should be noted that not all risk categories may be applicable for each project and/or award type. |
| 7. | <i>When possible, risk events should be associated with the applicable project task, sub-task and/or Work Breakdown Structure (WBS) element, as identified in the Project Management Plan.</i> |
| 8. | <i>Each risk event shall be recorded and numbered in the appropriate section of the Project Risk Register.</i> This will serve as a register of all identified events, including their respective evaluation and management plans. |
| 9. | The Risk Calculation Chart shall be used to assess the Degree of Risk for each event, as well as the level of management required to evaluate, respond, and mitigate that event. |
| 10. | Each risk event shall include identification of the event source (G for Government, R for Recipient or Other), which corresponds to with whom the event will likely occur, as well as assigning responsibility for ensuring that a response and mitigation strategy is defined and approved. |
| 11. | <i>Each risk event shall be evaluated appropriately to determine its full nature (i.e.; cause and likelihood of occurrence) and severity of impact. A resultant response (actions to be taken) and mitigation (steps to reduce likelihood and/or severity) strategy shall be documented.</i> |
| 12. | Following evaluation of each risk event, <i>the FPM will assign a Total Degree of Risk for both the category and the entire project.</i> If more than one high risk event is present in any given category, a notation is added assigning a high degree of risk to that entire category. If three or more categories contain high risk events, a further notation assigns a high degree of risk to the entire project. |
| 13. | Examples of risk events which should be considered during the assessment process can be found in the Common Risk Considerations document, located in the Project Management Intranet site. However, this list is not to be considered all inclusive, nor shall each event be relative for all projects. |
| 14. | <i>This assessment is to be considered a "living document", and should be re-evaluated following negotiations, occurrence of a risk event, or changes in project objectives, costs, or schedule.</i> |
| 15. | Routine updates to this document may be accomplished without formal review and/or approval. However, <i>major project occurrences such as those identified herein will require a re-assessment of risk resulting in a revision to this document.</i> Example situations that would require a revision include, but are not limited to: <ul style="list-style-type: none"> • Continuation Applications • Occurrence of a High Risk Event • Major changes to Scope, Schedule or Cost |
| 16. | <i>Upon completion of this and any subsequent assessments, ProMIS (Requirements tab) must be updated and a copy of this document stored (Files tab) in Adobe Acrobat (.pdf) format. In addition, it is recommended that a copy of this and subsequent assessments be maintained by the CS/CO for inclusion in the official award file.</i> |

PROJECT RISK REGISTER

DEFINITION OF TERMS AND REQUIRED ACTIONS

| | | |
|-----------------------|-----------------|--|
| PROBABILITY | High | <i>Event is expected to occur during project execution.</i> |
| | Moderate | Event is somewhat likely to occur. |
| | Low | Event is not likely to occur. |
| IMPACT | High | <i>Consequences are severe and would likely result in project failure.</i> |
| | Moderate | Consequences would likely result in failure to meet certain objectives, milestones, financial goals, schedule, etc... |
| | Low | Consequences are insignificant to project objectives. |
| DEGREE OF RISK | High | <i>Risk event is likely to happen and would result in a severe impact to the project. A detailed evaluation, response plan, mitigation strategy, and critical oversight are required.</i> |
| | Moderate | Risk event is somewhat likely to occur and would result in moderate impact to the project. A detailed evaluation, response plan, mitigation strategy, and oversight are required. |
| | Low | Risk event is not likely to occur and would not have any significant impact to the project objectives. A description and evaluation are required for documentation, and general monitoring should be considered. |

PROJECT RISK REGISTER

FINANCIAL

Issues associated with project financing and organizational commitment that jeopardize realization of project milestones and objectives

| ITEM | SOURCE G, R or Other | RISK ASSESSMENT (Identification & Evaluation of Risk Events) • Description and Evaluation • Probability (Low, Moderate or High) - explain • Impact (Low, Moderate or High) - explain | DEGREE OF RISK (See Risk Calculation Chart) | RISK MANAGEMENT (Response & Mitigation Strategies) <i>All High risk events/categories must include a detailed evaluation; response plan; mitigation strategy; and critical oversight (actions to monitor events deemed critical) are required.</i> |
|-------------------------------|----------------------------|--|--|--|
| | | | Low Moderate High | |
| 1.01 | | | | |
| 1.02 | | | | |
| 1.03 | | | | |
| 1.04 | | | | |
| 1.05 | | | | |
| 1.06 | | | | |
| 1.07 | | | | |
| 1.08 | | | | |
| 1.09 | | | | |
| 1.10 | | | | |
| TOTAL CATEGORY DEGREE OF RISK | | | | |

Note: Rows may be added or deleted as necessary. If additional space is required for documenting risk event assessments and/or management plans, separate pages may be attached.

PROJECT RISK REGISTER

COST / SCHEDULE

Cost or schedule issues that jeopardize realization of project milestones and objectives.

| ITEM | SOURCE G, R or Other | RISK ASSESSMENT (Identification & Evaluation of Risk Events) • Description and Evaluation • Probability (Low, Moderate or High) - explain • Impact (Low, Moderate or High) - explain | DEGREE OF RISK (See Risk Calculation Chart) | RISK MANAGEMENT (Response & Mitigation Strategies) <i>All High risk events/categories must include a detailed evaluation; response plan; mitigation strategy; and critical oversight (actions to monitor events deemed critical) are required.</i> |
|-------------------------------|----------------------------|--|--|--|
| | | | Low Moderate High | |
| 2.01 | | | | |
| 2.02 | | | | |
| 2.03 | | | | |
| 2.04 | | | | |
| 2.05 | | | | |
| 2.06 | | | | |
| 2.07 | | | | |
| 2.08 | | | | |
| 2.09 | | | | |
| 2.10 | | | | |
| TOTAL CATEGORY DEGREE OF RISK | | | | |

Note: Rows may be added or deleted as necessary. If additional space is required for documenting risk event assessments and/or management plans, separate pages may be attached.

PROJECT RISK REGISTER

TECHNICAL / SCOPE

Technical or scope related item that jeopardize realization of project milestones and objectives.

| ITEM | SOURCE G, R or Other | RISK ASSESSMENT (Identification & Evaluation of Risk Events) • Description and Evaluation • Probability (Low, Moderate or High) - explain • Impact (Low, Moderate or High) - explain | DEGREE OF RISK (See Risk Calculation Chart) | RISK MANAGEMENT (Response & Mitigation Strategies) <i>All High risk events/categories must include a detailed evaluation; response plan; mitigation strategy; and critical oversight (actions to monitor events deemed critical) are required.</i> |
|------|----------------------------|--|--|--|
| | | | Low Moderate High | |
| 3.01 | | | | |
| 3.02 | | | | |
| 3.03 | | | | |
| 3.04 | | | | |
| 3.05 | | | | |
| 3.06 | | | | |
| 3.07 | | | | |
| 3.08 | | | | |
| 3.09 | | | | |
| 3.10 | | | | |

| | | |
|--------------------------------------|--|--|
| TOTAL CATEGORY DEGREE OF RISK | | |
|--------------------------------------|--|--|

Note: Rows may be added or deleted as necessary. If additional space is required for documenting risk event assessments and/or management plans, separate pages may be attached.

PROJECT RISK REGISTER

MANAGEMENT, PLANNING & OVERSIGHT

Management related items, including planning and oversight concerns that jeopardize realization of project milestones and objectives.

| ITEM | SOURCE G, R or Other | RISK ASSESSMENT (Identification & Evaluation of Risk Events) • Description and Evaluation • Probability (Low, Moderate or High) - explain • Impact (Low, Moderate or High) - explain | DEGREE OF RISK (See Risk Calculation Chart) | RISK MANAGEMENT (Response & Mitigation Strategies) <i>All High risk events/categories must include a detailed evaluation; response plan; mitigation strategy; and critical oversight (actions to monitor events deemed critical) are required.</i> |
|--------------------------------------|----------------------------|--|--|--|
| | | | Low Moderate High | |
| 4.01 | | | | |
| 4.02 | | | | |
| 4.03 | | | | |
| 4.04 | | | | |
| 4.05 | | | | |
| 4.06 | | | | |
| 4.07 | | | | |
| 4.08 | | | | |
| 4.09 | | | | |
| 4.10 | | | | |
| TOTAL CATEGORY DEGREE OF RISK | | | | |

Note: Rows may be added or deleted as necessary. If additional space is required for documenting risk event assessments and/or management plans, separate pages may be attached.

PROJECT RISK REGISTER

ENVIRONMENTAL, SAFETY & HEALTH

NEPA and other ES&H items that jeopardize realization of project milestones and objectives.

| ITEM | SOURCE G, R or Other | RISK ASSESSMENT (Identification & Evaluation of Risk Events) • Description and Evaluation • Probability (Low, Moderate or High) - explain • Impact (Low, Moderate or High) - explain | DEGREE OF RISK (See Risk Calculation Chart) | RISK MANAGEMENT (Response & Mitigation Strategies) <i>All High risk events/categories must include a detailed evaluation; response plan; mitigation strategy; and critical oversight (actions to monitor events deemed critical) are required.</i> |
|-------------------------------|----------------------------|--|--|--|
| | | | Low Moderate High | |
| 5.01 | | | | |
| 5.02 | | | | |
| 5.03 | | | | |
| 5.04 | | | | |
| 5.05 | | | | |
| 5.06 | | | | |
| 5.07 | | | | |
| 5.08 | | | | |
| 5.09 | | | | |
| 5.10 | | | | |
| TOTAL CATEGORY DEGREE OF RISK | | | | |

Note: Rows may be added or deleted as necessary. If additional space is required for documenting risk event assessments and/or management plans, separate pages may be attached.

PROJECT RISK REGISTER

EXTERNAL INFLUENCES

Programmatic and other factors external to the project that jeopardize realization of project milestones and objectives.

| ITEM | SOURCE G, R or Other | RISK ASSESSMENT (Identification & Evaluation of Risk Events) • Description and Evaluation • Probability (Low, Moderate or High) - explain • Impact (Low, Moderate or High) - explain | DEGREE OF RISK (See Risk Calculation Chart) | RISK MANAGEMENT (Response & Mitigation Strategies) <i>All High risk events/categories must include a detailed evaluation; response plan; mitigation strategy; and critical oversight (actions to monitor events deemed critical) are required.</i> |
|--------------------------------------|----------------------------|--|--|--|
| | | | Low Moderate High | |
| 6.01 | | | | |
| 6.02 | | | | |
| 6.03 | | | | |
| 6.04 | | | | |
| 6.05 | | | | |
| 6.06 | | | | |
| 6.07 | | | | |
| 6.08 | | | | |
| 6.09 | | | | |
| 6.10 | | | | |
| TOTAL CATEGORY DEGREE OF RISK | | | | |

Note: Rows may be added or deleted as necessary. If additional space is required for documenting risk event assessments and/or management plans, separate pages may be attached.

PROJECT RISK REGISTER

OTHER

Other Project risks which are not applicable to the pre-defined risk categories.

| ITEM | SOURCE G, R or Other | RISK ASSESSMENT (Identification & Evaluation of Risk Events) • Description and Evaluation • Probability (Low, Moderate or High) - explain • Impact (Low, Moderate or High) - explain | DEGREE OF RISK (See Risk Calculation Chart) | RISK MANAGEMENT (Response & Mitigation Strategies) <i>All High risk events/categories must include a detailed evaluation; response plan; mitigation strategy; and critical oversight (actions to monitor events deemed critical) are required.</i> |
|------|----------------------------|--|--|--|
| | | | Low Moderate High | |
| 7.01 | | | | |
| 7.02 | | | | |
| 7.03 | | | | |
| 7.04 | | | | |
| 7.05 | | | | |
| 7.06 | | | | |
| 7.07 | | | | |
| 7.08 | | | | |
| 7.09 | | | | |
| 7.10 | | | | |

| | | |
|--------------------------------------|--|--|
| TOTAL CATEGORY DEGREE OF RISK | | |
|--------------------------------------|--|--|

Note: Rows may be added or deleted as necessary. If additional space is required for documenting risk event assessments and/or management plans, separate pages may be attached.

PROJECT RISK REGISTER

TOTAL PROJECT

| TOTAL PROJECT RISK ASSESSMENT | DEGREE OF RISK | RISK MANAGEMENT (Response & Mitigation Strategies) <i>All High risk events/categories must include a detailed evaluation; response plan; mitigation strategy; and critical oversight (actions to monitor events deemed critical) are required.</i> |
|-------------------------------|--|--|
| | Low Moderate High | |
| | | |

Note: Rows may be added or deleted as necessary. If additional space is required for documenting the Total Project risk assessment and/or management plan, separate pages may be attached.

PROJECT RISK REGISTER

The following is a sample format for continuation of risk event evaluation and management planning. Although this format is not to be considered mandatory, it does represent the minimum information required for each risk event.

ITEM NUMBER: << As listed in the Risk Register >>

RISK ASSESSMENT: << Complete Identification and Evaluation of the event >>

DEGREE OF RISK: Low, Moderate or High

RISK MANAGEMENT: << Complete Response and Mitigation Strategy for the event >>

PROJECT RISK REGISTER

| | | | |
|---|--|--|-------|
| IDENTIFICATION NUMBER (CID): | | REVISION NUMBER (e.g.; Original, 1, 2, etc.): | |
| RECIPIENT: | | | |
| PROJECT TITLE: | | | |
| INTEGRATED PROJECT TEAM (IPT): | | | |
| <ul style="list-style-type: none"> The IPT may vary for each project. Therefore, this list is not to be considered exclusive or all inclusive, and must be modified to reflect the appropriate project assignments. In many cases, for small dollar value and straight-forward projects, the IPT would consist of the FPM and the CS. For a limited number of projects, such as those funded through the SBIR Program, the CS is not an NETL employee. In these cases, the FPM should obtain input from the CS, as practicable, but may proceed without CS input if concurred to by management. If the IPT consists of more members than those listed, please attach the respective names and signatures separately. | _____ | _____ | _____ |
| | Federal Project Manager | Signature | Date |
| | _____ | _____ | _____ |
| | Contracting Officer or Contract Specialist | Signature | Date |
| | _____ | _____ | _____ |
| | Legal Counsel or Other (Specify) | Signature | Date |
| | _____ | _____ | _____ |
| NEPA Document Manager or Other (Specify) | Signature | Date | |
| _____ | _____ | _____ | |
| Project Engineer or Other (Specify) | Signature | Date | |
| _____ | _____ | _____ | |
| Division Director or Other (Specify) | Signature | Date | |
| <p>By above signature, I/We certify that this Risk Register has been made with knowledge of the Program strategic and annual operating plan, the Procurement Strategy Document, technical merit evaluation strengths and weaknesses, pertinent Selection Statement and Merit Review Committee recommendations, the proposed Statement of Project Objectives (SOPO) and Project Management Plan (PMP), the Technical Evaluation of Budget (TEB), and all available historical information (e.g.; past performance prior R&D, etc.).</p> | | | |
| ATTACHMENT(S): | (5) | | |
| <ul style="list-style-type: none"> List and attach continuation pages and/or any supporting documentation. | (6) | | |
| | | | |
| BRIEF PROJECT DESCRIPTION | | | |
| <p>Not intended to restate the SOPO, but rather characterize the nature of the project. While the technical objective can be restated, it is important to state whether it is a simple or complex project over multiple years with few or numerous participants, etc.</p> | | | |
| | | | |

PROJECT RISK REGISTER

| INSTRUCTIONS FOR COMPLETING THE PROJECT RISK REGISTER | |
|---|---|
| 1. | Although the Federal Project Manager (FPM) has primary responsibility for completing these evaluations, <i>the entire Integrated Project Team (IPT) shall participate in the initial and any subsequent changes to the project's assessment.</i> |
| 2. | The IPT may vary for each project. Therefore, the list provided on Page 1 of this Assessment is not to be considered exclusive or all inclusive, and must be modified to reflect the appropriate project assignments. |
| 3. | Each project must first be evaluated using the Assessment of Project Risk Potential to calculate the overall project risk potential. This will determine the level of Risk Assessment and Management to which the project is to be evaluated, monitored and reported. |
| 4. | At the discretion of the FPM or other member(s) of the IPT and with appropriate justification, the project may be subjected to more or less Risk Assessment and Management processing than required by the Assessment of Project Risk Potential score. |
| 5. | If, following the Assessment of Project Risk Potential, the project requires further review, it shall be evaluated at each Risk Category to establish a baseline Risk Assessment and Management Plan. |
| 6. | Risk events (i.e.; situations, results, etc.) should be identified for each of the six risk categories. However, it should be noted that not all risk categories may be applicable for each project and/or award type. |
| 7. | <i>When possible, risk events should be associated with the applicable project task, sub-task and/or Work Breakdown Structure (WBS) element, as identified in the Project Management Plan.</i> |
| 8. | <i>Each risk event shall be recorded and numbered in the appropriate section of the Project Risk Register.</i> This will serve as a register of all identified events, including their respective evaluation and management plans. |
| 9. | The Risk Calculation Chart shall be used to assess the Degree of Risk for each event, as well as the level of management required to evaluate, respond, and mitigate that event. |
| 10. | Each risk event shall include identification of the event source (G for Government, R for Recipient or Other), which corresponds to with whom the event will likely occur, as well as assigning responsibility for ensuring that a response and mitigation strategy is defined and approved. |
| 11. | <i>Each risk event shall be evaluated appropriately to determine its full nature (i.e.; cause and likelihood of occurrence) and severity of impact. A resultant response (actions to be taken) and mitigation (steps to reduce likelihood and/or severity) strategy shall be documented.</i> |
| 12. | Following evaluation of each risk event, <i>the FPM will assign a Total Degree of Risk for both the category and the entire project.</i> If more than one high risk event is present in any given category, a notation is added assigning a high degree of risk to that entire category. If three or more categories contain high risk events, a further notation assigns a high degree of risk to the entire project. |
| 13. | Examples of risk events which should be considered during the assessment process can be found in the Common Risk Considerations document, located in the Project Management Intranet site. However, this list is not to be considered all inclusive, nor shall each event be relative for all projects. |
| 14. | <i>This assessment is to be considered a "living document", and should be re-evaluated following negotiations, occurrence of a risk event, or changes in project objectives, costs, or schedule.</i> |
| 15. | Routine updates to this document may be accomplished without formal review and/or approval. However, <i>major project occurrences such as those identified herein will require a re-assessment of risk resulting in a revision to this document.</i> Example situations that would require a revision include, but are not limited to: <ul style="list-style-type: none"> • Continuation Applications • Occurrence of a High Risk Event • Major changes to Scope, Schedule or Cost |
| 16. | <i>Upon completion of this and any subsequent assessments, ProMIS (Requirements tab) must be updated and a copy of this document stored (Files tab) in Adobe Acrobat (.pdf) format. In addition, it is recommended that a copy of this and subsequent assessments be maintained by the CS/CO for inclusion in the official award file.</i> |

PROJECT RISK REGISTER

DEFINITION OF TERMS AND REQUIRED ACTIONS

| | | |
|-----------------------|-----------------|--|
| PROBABILITY | High | <i>Event is expected to occur during project execution.</i> |
| | Moderate | Event is somewhat likely to occur. |
| | Low | Event is not likely to occur. |
| IMPACT | High | <i>Consequences are severe and would likely result in project failure.</i> |
| | Moderate | Consequences would likely result in failure to meet certain objectives, milestones, financial goals, schedule, etc... |
| | Low | Consequences are insignificant to project objectives. |
| DEGREE OF RISK | High | <i>Risk event is likely to happen and would result in a severe impact to the project. A detailed evaluation, response plan, mitigation strategy, and critical oversight are required.</i> |
| | Moderate | Risk event is somewhat likely to occur and would result in moderate impact to the project. A detailed evaluation, response plan, mitigation strategy, and oversight are required. |
| | Low | Risk event is not likely to occur and would not have any significant impact to the project objectives. A description and evaluation are required for documentation, and general monitoring should be considered. |

CATEGORIES OF RISK

| | |
|----------|--|
| 1 | FINANCIAL Issues associated with project financing and organizational commitment that jeopardizes realization of project milestones and objectives. |
| 2 | COST / SCHEDULE Cost or schedule issues that jeopardize realization of project milestones and objectives. |
| 3 | TECHNICAL / SCOPE Technical or scope related item that jeopardize realization of project milestones and objectives. |
| 4 | MANAGEMENT, PLANNING & OVERSIGHT Management related items, including planning and oversight concerns that jeopardize realization of project milestones and objectives. |
| 5 | ENVIRONMENTAL, SAFETY & HEALTH NEPA and other ES&H items that jeopardize realization of project milestones and objectives. |
| 6 | EXTERNAL INFLUENCES Programmatic and other factors external to the project that jeopardize realization of project milestones and objectives. |
| 7 | OTHER Other Project risks which are not applicable to the pre-defined risk categories. |

PROJECT RISK REGISTER

| ITEM | RISK CATEGORY 1 – 7 <i>See Risk Categories on page 3</i> | SOURCE G, R or Other | RISK ASSESSMENT (Identification & Evaluation of Risk Events) • Description and Evaluation • Probability (Low, Moderate or High) - explain • Impact (Low, Moderate or High) - explain | DEGREE OF RISK <i>See Risk Calculation Chart</i> | RISK MANAGEMENT (Response & Mitigation Strategies) <i>All High risk events/categories must include a detailed evaluation; response plan; mitigation strategy; and critical oversight (actions to monitor events deemed critical) are required.</i> |
|------|---|----------------------------|---|--|--|
| | | | | Low Moderate High | |
| 1.01 | | | | | |
| 1.02 | | | | | |
| 1.03 | | | | | |
| 1.04 | | | | | |
| 1.05 | | | | | |
| 1.06 | | | | | |
| 1.07 | | | | | |
| 1.08 | | | | | |
| 1.09 | | | | | |
| 1.10 | | | | | |

| | | |
|-------------------------------------|--|--|
| TOTAL PROJECT DEGREE OF RISK | | |
|-------------------------------------|--|--|

Note: Rows may be added or deleted as necessary. If additional space is required for documenting risk event assessments and/or management plans, separate pages may be attached.

PROJECT RISK REGISTER

The following is a sample format for continuation of risk event evaluation and management planning. Although this format is not to be considered mandatory, it does represent the minimum information required for each risk event.

ITEM NUMBER: << As listed in the Risk Register >>

RISK ASSESSMENT: << Complete Identification and Evaluation of the event >>

DEGREE OF RISK: Low, Moderate or High

RISK MANAGEMENT: << Complete Response and Mitigation Strategy for the event >>

COMMON RISK CONSIDERATIONS

The following list represents example lines of inquiry which should be considered for each category during the Risk Assessment and Planning process. This list is not to be considered all inclusive, nor shall each event be relative for all projects.

FINANCIAL

Issues associated with project financing and organizational commitment that jeopardize realization of project milestones and objectives

- Total Government funds involved or likely to be involved
- Government funding schedule – relation to expected annual expenditures, timing of expected approved budgets, and potential uncostered obligations
- What is the payment method? Are adequate controls in place for funds management?
- Organization's alignment with Program emphases
- Certainty of cost sharing
- Amount of cost sharing
- Nature of Recipient's cost share & financing arrangements
- Recipient's financial/business stability
- Expected award value
- Involvement of foreign companies – currency exchange rates
- Have recent DCAA or other audits been conducted? Are they necessary?

COST / SCHEDULE

Cost or schedule issues that jeopardize realization of project milestones and objectives.

- Adequacy of total estimated budget – maybe have different thresholds <\$750K, \$750K-\$5 million, \$5-10 million, >\$10 million
- Availability & cost of materials, resources, etc.
- Agreement structure, adequacy of budget period/decision point definition/time allotted for decisions
- Time limitations placed on developmental cycle
- Schedule certainty & constraints, such as those driven externally
- Are no-cost time extensions likely/acceptable based on terms of the agreement and program requirements
- Scheduling of test programs at operating pilot or commercial facilities
- Clarity of milestones and associated metrics

COMMON RISK CONSIDERATIONS

TECHNICAL / SCOPE

Technical or scope related item that jeopardize realization of project milestones and objectives.

- Clarity of technical requirements
- Clarity of specific relationship to programmatic goals
- Clarity of project objectives, SOPO
- Clarity of technical objectives, goals and success criteria – is a technology hardware or knowledge product expected?
- Clarity and completeness of task/subtask descriptions
- Does the agreement include all work elements required to attain objectives; is follow-on, additional work anticipated? Are requested changes in work elements documented, appropriate, and acceptable to management officials?
- Are all phases of the project adequately defined; if not, how & when will definition occur and are these supported by the agreement?
- First-of-a-kind design considerations
- Level of difficulty in performing parametric tests– is a comprehensive test plan warranted?
- Adequacy of test facilities and objectives
- Are Government-supplied equipment, data or services involved
- Are National Labs conducting portions of the research under a separate FWP?
- Adequacy of data supporting the maturity of technology or research topic
- Interface requirements with other systems & subsystems
- Qualifications and experience of recipient & subcontractors

COMMON RISK CONSIDERATIONS

MANAGEMENT, PLANNING & OVERSIGHT

Management related items, including planning and oversight concerns that jeopardize realization of project milestones and objectives.

- Qualifications and experience of management personnel
- Complexity of business arrangements
- Adequacy of management systems, e.g. financial reporting, product development
- Business sense of the recipient (i.e. experience with product development)
- Intellectual property concerns – involvement of foreign companies, rights to data, patent infringement
- Prior performance & history with FA agreements
- Site ownership and access requirements
- Coordination and communications required among numerous groups
- Clarity and certainty of project assumptions
- Availability and allocation of resources
- Adequacy of Project Management Plan, including annual funding requirements, projected spend rate, risk approach, and schedule considerations
- Adequacy of Risk Management Approach – is a separate document warranted?
- Organizational structure – including the relationship between the business office and principle investigator
- Ability/commitment to meet administrative requirements, e.g. reporting, communications, briefings, risk mitigation, cost control
- Are reporting requirements appropriate for the level of oversight deemed necessary?

ENVIRONMENTAL, SAFETY & HEALTH

NEPA and other ES&H items that jeopardize realization of project milestones and objectives.

- NEPA and environmental considerations
 - Recipient's safety program/record
 - Potential for hazardous conditions – temperature, pressure, materials, gases, etc.
 - Potential environmental impacts/site restoration needs
 - Potential safety and health issues
 - Recipient's ES&H program – existence and nature of
- Corporate culture relating to ES&H

COMMON RISK CONSIDERATIONS

EXTERNAL INFLUENCES

Programmatic and other factors external to the project that jeopardize realization of project milestones and objectives.

- Political visibility (DOE, state & local governments, or Congress)
- Certainty of DOE funding, program support, change in program emphasis
- Degree of HQ/program involvement in oversight and decision processes – effect on schedule
- Interfaces with other programs, funding agencies
- Congressional, legislative and regulatory requirements
- Market certainty – relationship to expected project outcome
- Degree of competition expected - Number of respondents & Number of Awards expected

Appendix D – Project Management Plan

PROJECT MANAGEMENT PLAN

{Agreement Title}¹

{Date Prepared}

WORK PERFORMED UNDER AGREEMENT

DE-FC26-0xNT4{xxxx}

SUBMITTED BY

{Organization Name}
{Organization Address}
{City, State, Zip Code}

PRINCIPAL INVESTIGATOR

{Name}
{Phone Number}
{Fax Number}
{E-Mail}

SUBMITTED TO

U. S. Department of Energy
National Energy Technology Laboratory

{FPM Name}
{FMP Email}

¹NOTE: { } denotes required information.

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1. EXECUTIVE SUMMARY

Provide a description of the project that includes the objective, project goals and expected results. The summary should also include a succinct project background and project rationale. For purposes of the application, this information should be a summary of the pertinent information that is included in the Project Narrative (Field 7), so that the Project Management Plan is a stand-alone document.

2. RISK MANAGEMENT

The Applicant (Recipient) shall provide a summary description of the proposed approach to identify, analyze, and respond to perceived risks associated with the proposed project. Project risk events are uncertain future events that, if realized, impact the success of the project. Since risk is inherent to all projects, regardless of the level of complexity, cost or visibility, project risk must be addressed to the appropriate level for every project. It is recognized that the depth of analysis and the complexity and cost of the resulting risk management approach (and plan) will differ from project to project and among organizations. Commonly accepted approaches, such as those supported by The Project Management Institute's A Guide to the Project Management Book of Knowledge, should be considered.

As a minimum, the Applicant (Recipient) should provide sufficient information with the application to demonstrate an appropriate approach to managing risks during project execution. This must include the initial identification of significant technical, resource and management issues that have the potential to impede project progress and strategies to minimize impacts from those issues. For fundamental research and modeling studies it is anticipated that risks would focus on technical uncertainties that are the result of this type of work.

3. MILESTONE LOG

The Applicant (Recipient) is to provide milestones for each budget period of the project. Each milestone is to include a title, planned completion date and a description of the method/process/measure used to verify completion. The milestones developed should be quantitative and show progression towards budget period and/or project goals. It is expected that the Applicant (Recipient) will have a milestone at least semi-annually or every six months of the project schedule; however, milestones should not be developed to meet this expected schedule. Milestones are different than success criteria (Section 6) in that milestones typically show progress through the execution of the budget period and project, whereas success criteria are used by the DOE to determine if specific goals were met at budget period ends or other appropriate points in project execution.

Format for the milestone log should be as follows:

| | |
|-----------------------------|---------------------------------|
| Title: | {Milestone Title} |
| Planned Date: | {Planned Completion Date} |
| Verification Method: | {Milestone Verification Method} |

4. FUNDING AND COSTING PROFILE

The Applicant (Recipient) shall provide a table that shows, by budget period, the amount of government funding going to each member and cost share provided by members. The table shall also calculate totals and cost sharing percentages. Table 1 “Project Funding Profile” below is an example.

The Applicant (Recipient) shall also provide a table that projects, by month, the expenditure of the government funds in the current budget period, as a minimum. While it is recognized that out year costing profiles are less certain and the nature of specific tasks are dependent on successful or unsuccessful completion of the current RD&D approach, the Applicant (Recipient) should provide their estimates of out year costs to the extent practical. Table 2 – “Project Spending Plan” provides an example. Note that the spending plan total equals the BP 1 total government funds (\$725,000) and that BP 1 is 12 months in duration; budget periods can be more or less than 12 months in duration.

5. PROJECT TIMELINE

The Applicant (Recipient) shall provide a timeline of the project broken down by each task and subtask, as described in the Statement of Project Objectives. The timeline shall include for each task, a start date, end date, approximate cost and team members participating on the task and their role. The timeline shall also show any interdependencies with other tasks and note the milestones identified in the Milestone Log (Section 3). It is highly recommended that the Applicant (Recipient) consider using a commercial software package to generate the timeline as a Gantt chart (see Figure 1 as an example) or other applicable format.

6. SUCCESS CRITERIA AND DECISION POINTS

The success criteria should be objective and stated in terms of specific, measurable and repeatable data. Usually, the success criteria pertain to desirable outcomes, results and observations from the experimental efforts. The success criteria should not be based on interpretations. Typically, the expected performance parameters should be established with a technical and economic comparison made to the competing technologies or methods. A discussion should be included on the probable advantages and possible disadvantages. Advantages could include, but are not limited to:

- Validation/confirmation/identification of scientific/engineering knowledge
- Cost savings expected over existing technologies
- Performance enhancements to existing technologies
- Reduction in health and safety risks to the public and workers, and reduction in environmental risks.
- Ease of installation, operation, and maintenance.
- Decrease in capital, operating, and maintenance cost.

Success Criteria are different than milestones (Section 3) in that milestones typically show progress through the execution of the budget period and project, whereas success criteria are used by the DOE to determine if specific goals and objectives were met at budget period ends. Typically, these goals and objectives represent requirements established by the R&D program as evidence of progress in advancing a technology area or scientific/engineering knowledge. The success criteria may be used to assist DOE in deciding whether to proceed into subsequent budget period(s), if required.

7. AGREEMENT STATEMENT OF PROJECT OBJECTIVES

The Statement of Project Objectives (SOPO) from the Agreement will be inserted here. Note that Task 1.0 (or other designation) of the SOPO entails the work necessary to manage the project and to update the Project Management Plan submitted with the application. The Project Management Plan submitted as a work product under Task 1.0 (or other designation) serves as the base project cost, schedule and scope and is the basis for reporting quarterly progress in the Progress Report defined in the "Federal Assistance Reporting Checklist and Instructions"

Table 1 – Project Funding Profile

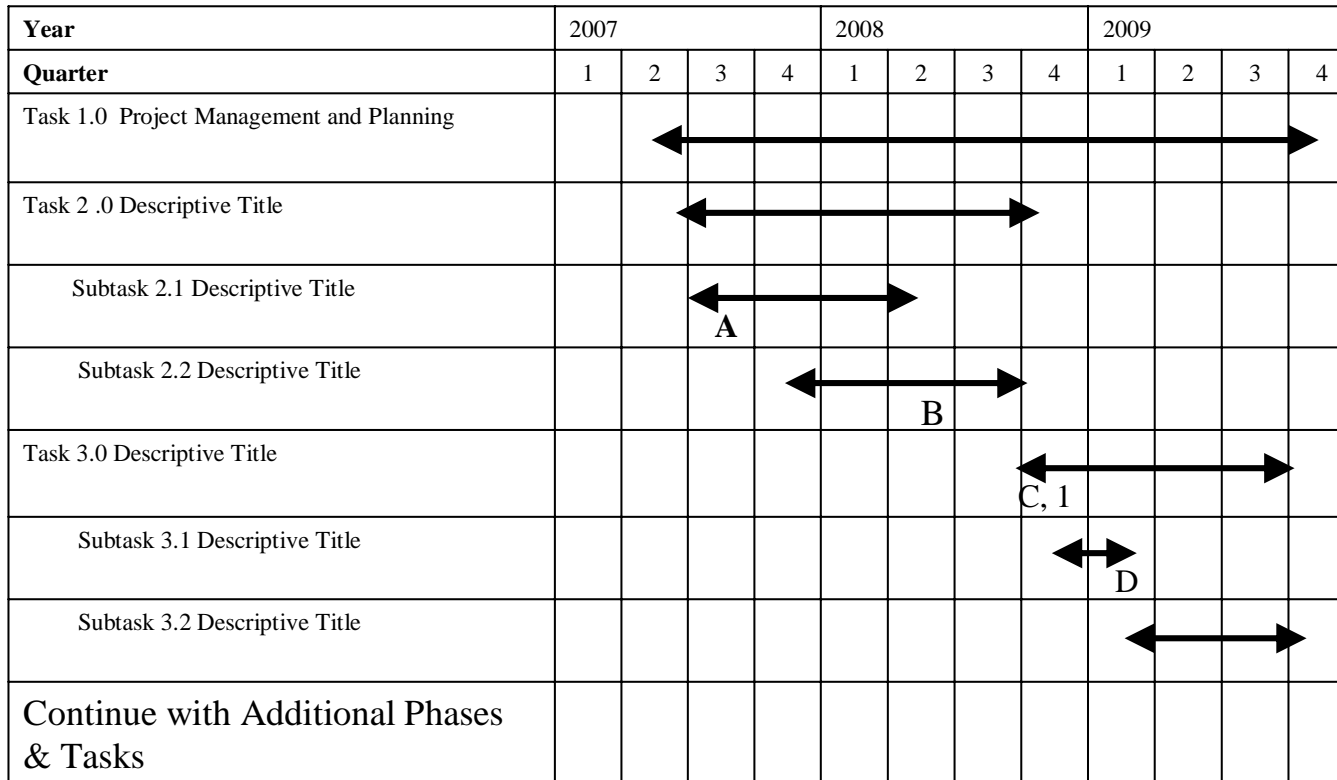
| | BP 1 | | BP 2 | | BP 3 | | Total | |
|------------------------------------|---------------------|-------------------|---------------------|-------------------|---------------------|-------------------|---------------------|-------------------|
| | Gov. Funding | Cost Share | Gov. Funding | Cost Share | Gov. Funding | Cost Share | Gov. Funding | Cost Share |
| Prime Applicant (Recipient) | \$650,000 | \$200,000 | \$500,000 | \$200,000 | \$450,000 | \$250,000 | \$1,600,000 | \$650,000 |
| Team Member⁽¹⁾ | \$75,000 | \$25,000 | \$100,000 | \$30,000 | \$50,000 | \$0 | \$225,000 | \$55,000 |
| Team Member | \$0 | \$0 | \$50,000 | \$0 | \$75,000 | \$0 | \$125,000 | \$0 |
| Team Member | | | | | | | | |
| Total: | \$725,000 | \$225,000 | \$650,000 | \$230,000 | \$575,000 | \$250,000 | \$1,950,000 | \$705,000 |
| CS %: | | 23.7% | | 26.1% | | 30.3% | | 26.6% |

⁽¹⁾ A Team Member is typically an organization participating on the project. It is typically not an individual person unless that person serves as a consultant or the single representative of a company.

Table 2 – “Project Spending Plan”

| BP1 – Nov. 2004 – Oct. 2005 | |
|------------------------------------|------------|
| November | 25 |
| December | 100 |
| January | 50 |
| February | 50 |
| March | 75 |
| April | 75 |
| May | 75 |
| June | 75 |
| July | 50 |
| August | 75 |
| September | 50 |
| October | 25 |
| Total (\$s in thousands) | 725 |

Figure 1 – Sample Project Timeline (Gantt Chart)

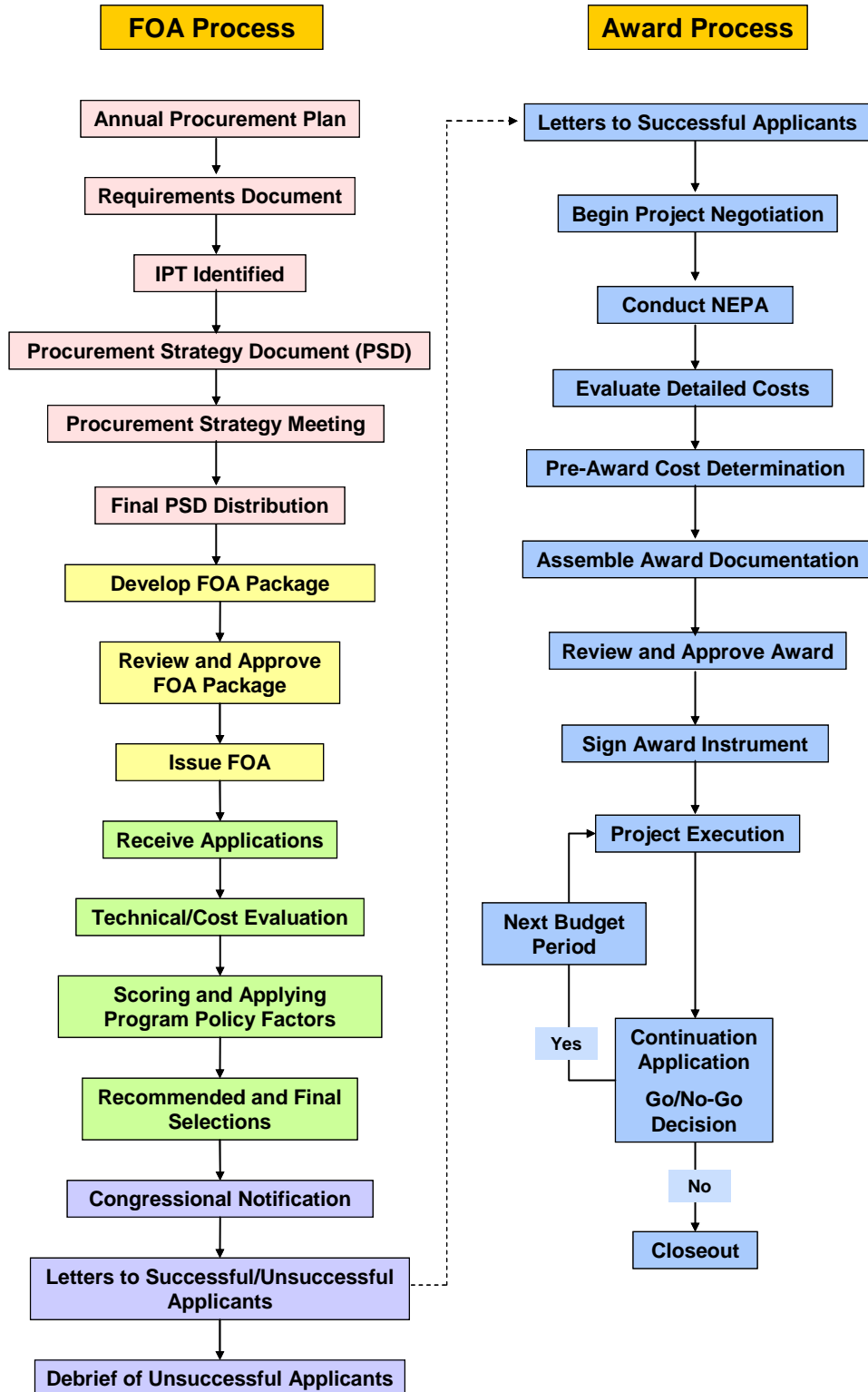


A, B, C etc. – Milestones from Milestone Log

1,2,3 etc – Decision Points

Note: Timelines for each task and subtask has an associated level of effort, typically budgeted cost

Appendix E – Project Management Process Flowchart



Appendix F – Acronyms and Abbreviations

| | |
|----------|---|
| AAD | Acquisition and Assistance Division |
| AOP | Annual Operating Plan |
| AR | Applied Research |
| BAA | Broad Agency Announcement |
| BD | Budget Directive |
| CCPI | Clean Coal Power Initiative |
| CD | Critical Decision |
| CEQ | Council on Environmental Quality |
| CFO | Chief Financial Officer |
| CFR | Code of Federal Regulations |
| CID | Contract Identification |
| CO | Contracting Officer |
| COR | Contracting Officer's Representative |
| CRADA | Cooperative Research and Development Agreements |
| CS | Contract Specialist |
| CX | Categorical Exclusion |
| DCAA | Defense Contract Audit Agency |
| DNFA | Determination of Noncompetitive Financial Assistance |
| DOE | Department of Energy |
| EA | Environmental Assessment |
| EERE | Energy Efficiency and Renewable Energy |
| EIS | Environmental Impact Statement |
| EIV | Environmental Information Volume |
| EPAct | Energy Policy Act |
| ePMA | Electronic Proposal Management Application |
| ES&H | Environmental Safety and Health |
| EQ | Environmental Questionnaire |
| E&S | Evaluation and Selection |
| FAL | Financial Assistance Letter |
| FAR | Federal Acquisition Regulations |
| FE | Fossil Energy |
| FITS | Federal Information Tracking System |
| FOA | Funding Opportunity Announcement |
| FOIA | Freedom of Information Act |
| FPD | Federal Project Director |
| FPM | Federal Project Manager |
| GPRA | Government Performance Results Act |
| HBCU/OMI | Historically Black College and University/Other Minority Institutions |
| HQ | Headquarters |
| IGEC | Independent Government Estimate of Cost |
| IIPS | Industry Interactive Procurement System |
| IP | Intellectual Property |
| IPT | Integrated Project Team |
| JOTFOC | Justification for Other Than Full and Open Competition |

| | |
|--------|---|
| KSA | Knowledge, Skills and Abilities |
| MRP | Merit Review Panel |
| MRPC | Merit Review Panel Chairperson |
| NEMS | National Energy Modeling System |
| NEPA | National Environmental Policy Act |
| NCO | NEPA Compliance Officer |
| NETL | National Energy Technology Laboratory |
| OMB | Office of Management and Budget |
| OSTI | Office of Scientific and Technical Information |
| PART | Program assessment and Rating Tool |
| PEP | Project Execution Plan |
| PI | Principal Investigator |
| PIP | Program Implementation Plan |
| PMBok | Project Management Body of Knowledge |
| PMC | Project Management Center |
| PMGD | Project Management Guidance Document |
| PMI | Project Management Institute |
| PO | Project Officer |
| PR | Procurement Request |
| PRATS | Procurement Request Authorization Tracking System |
| ProMIS | Project Management Information System |
| PSD | Procurement Strategy Document |
| PST | Procurement Strategy Team |
| QC | Quality Control |
| RAM | Risk Assessment and Management |
| RD&D | Research, Development and Demonstration |
| RFP | Request for Proposal |
| PRDA | Program Research and Development Announcement |
| SBIR | Small Business Innovative Research |
| SCNGO | Strategic Center for National Gas and Oil |
| SOPO | Statement of Project Objectives |
| SOW | Statement of Work |
| SO | Selection Official |
| STARS | Standard Accounting and Reporting System |
| TEB | Technical Evaluation of the Budget |
| TIA | Technology Investment Agreement |
| TPA | Typical Procurement Action |
| UCR | University Coal Research |
| VIAS | Vendor Invoice Acceptance System |
| WBS | Work Breakdown Structure |